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Procjena socioemocionalnog razvoja dojenčadi u Primorsko-goranskoj županiji

Sandra Bošković, Andrica Lekić, Hrvoje Vlahović*

Cilj: Važnost istraživanja socioemocionalnog razvoja djeteta ogleda se u prevenciji rizika odstupanja u socioemocionalnom razvoju s ciljem rane intervencije u radu s djecom koja odstupaju od urednog razvoja ili pripadaju skupini djece s neurorizikom. Cilj rada bio je utvrditi valjanost i pouzdanost skale socioemocionalne procjene u svrhu standardizacije mjernog instrumenta u Republici Hrvatskoj i utvrditi stupanj socioemocionalnog razvoja dojenčadi s ciljem utvrđivanja eventualnih odstupanja od urednog razvoja i faktora koji utječu na socioemocionalni razvoj.

Metode: U istraživanju se primjenjivala skala socioemocionalne procjene kao mjerni instrument za procjenu socioemocionalnog razvoja dojenčeta od 2-18 mjeseci kao instrument ranog prepoznavanja odstupanja u razvoju. U ispitivanju je sudjelovalo 63 roditelja s područja Primorsko-goranske županije.

Rezultati: Psihometrijske karakteristike socioemocionalne skale pokazale su da je instrument pouzdan za procjenu socioemocionalnog razvoja s Cronbach $\alpha=0,92$. Faktorskom analizom je ispitana valjanost. Ne postoje statistički značajne razlike u socioemocionalnom razvoju djece s obzirom na porođajnu masu, tip trudnoće, vrijeme i tip poroda i stanje djeteta, što pokazuje da su roditelji djece osigurali sve preduvjete poticanja urednog socioemocionalnog razvoja bez obzira na eventualne faktore rizika.

Zaključak: Kroz dobivene rezultate vidljivo je da upitnik za procjenu socioemocionalnog razvoja u ovom istraživanju valjan i pouzdan te da je pogodan za postupak standardizacije u Hrvatskoj. Istraživanja su jasno pokazala važnost rane procjene socioemocionalnog razvoja djeteta s ciljem rane intervencije u prevenciji odstupanja u razvoju. Važnost standardizacije upitnika osigurava njegovu primjenu u radu patronažnih sestara koje provode procjenu zdravstvenog stanja i razvoja dojenčeta u sklopu sveobuhvatne patronažne skrbi za dojenče.

Ključne riječi: DOJENČE; UPITNIK; ISTRAŽIVANJE U ZAJEDNICI; RAZVOJ DJETETA

UVOD

Razvoj djeteta u prvim godinama života izrazito je brz i bogat. Osim motoričkom i govorno-jezičnom razvoju, posebna pozornost pridaje se socioemocionalnom razvoju djeteta (1). Razvoj svakog djeteta započinje intrauterino, a nastavlja se nakon rođenja kroz tjelesni, motorički, emocionalni i socijalni razvoj. Istraživanja su pokazala da događaji iz prvih godina djetetova života snažno utječu na kasniji razvoj osobe, što potvrđuju i psihološke teorije – psihoanalitička teorija ličnosti i teorija objektnih odnosa (2). Iz tog razloga, važno je pratiti psihološki razvoj čovjeka, od začeca pa do smrti, što je područje bavljenja razvojne psihologije (3). Adekvatnim socioemocionalnim razvojem oblikuje se dje-

tetova osobnost i priprema ga se da na zadovoljavajući način odgovara na svakodnevne situacije u životu. Razdoblje od rođenja djeteta do treće godine njegova života izuzetno je važno za razvoj, što potvrđuju brojna znanstvena istraživanja (4). U prvim godinama života počinju se razvijati sve djetetove sposobnosti, mišljenja, emocije i govor, a najspособniji za razvoj je mozak. To razdoblje očituje se upravo najintenzivnijom plastičnošću mozga tj. najaktivnijem stvaranju neuronskih veza (4). Važan zadatak neuralnog razvoja

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je umrežavanje neurona koje pri rođenju iznosi tek četvrtinu, a tijekom prve tri godine doseže do 90% konačnog stupnja umreženosti (5). U tom periodu svaki dan djetetovog života predstavlja razvojni korak. Djeca se razvijaju od potpuno ovisne novorođenčadi do neovisnih, komunikativnih pojedinaca koji stječu vlastite vještine. Možemo reći da je to najosjetljivije razdoblje u životu djeteta, kada su njihov mozak i ponašanje najosjetljiviji na promjene u okolini (4). Socioemocionalni razvoj je proces kroz koji djeca i odrasli stječu i primjenjuju znanja, stavove i vještine koje su neophodne za razumijevanje i upravljanje vlastitim emocijama i ponašanjem (6). Socioemocionalni razvoj uključuje razvoj afektivnih, kognitivnih i ponašajnih kompetencija na širokim područjima funkcioniranja osobe. Već od malih nogu djeca se razlikuju u načinu doživljavanja određene emocije i određene situacije. Kako će pojedino dijete reagirati u određenoj situaciji ovisi o tome kako će istu doživjeti, o ponašanjima i postupcima koji se događaju u njegovoj okolini, te o nasljednim karakteristikama temperamenta. Djeca od rođenja u interakciji s okolinom u kojoj se nalaze pokazuju svoje osjećaje te uče kako prepoznati i kontrolirati emocije. Pozitivne emocije kao što su sreća i iznenađenje te negativne emocije, poput ljutnje, tuge i straha, smatraju se osnovnim emocijama i mogu se prepoznati vrlo rano u djetinjstvu (7). Dječje razumijevanje emocija ima važnu ulogu u ophođenju s vlastitim osjećajima i u interpersonalnim odnosima s drugima iz okoline te je povezano s dječjim izražavanjem emocija, psihosocijalnim vještinama, te prosocijalnim i agresivnim ponašanjem (8). Nadalje, dječje razumijevanje emocija vrlo je povezano sa socijalnom kompetencijom i pozitivnim odnosima s prijateljima kao važnim odrednicama psihosocijalne prilagodbe. Djeca s poremećajima u ponašanju u predškolsko doba pokazuju manje sposobnosti razumijevanja emocija (9).

Poznavajući razvojne faze djeteta lakše će se prepoznati odstupanja od urednog razvoja i moći će se pravovremeno reagirati – preventivno kroz ranu dijagnostiku, rehabilitaciju i rehabilitaciju i poticanje stjecanja vještina sukladnih kronološkoj dobi (1). Značajnu ulogu u ranom prepoznavanju razvoja djeteta i eventualnih odstupanja u razvoju imaju patronažne sestre kao dio tima koji prate razvoj djeteta odmah po rođenju te svojim znanjem i kompetencijama mogu kao stručne osobe zadužene za kućne posjete promatrati, unapređivati i pratiti razvoj djeteta tako da u obzir budu uzete posebne okolnosti i potrebe djeteta i obitelji.

Ovo je aktivnost koja se odvija prilikom svakog posjeta kojim se prati opći napredak djeteta, kao i posebna područja razvoja, npr. gruba i fina motorika, kognitivne sposobnosti, jezične i socioemocionalne sposobnosti, kao i sposobnost samoregulacije. Prekretnice u razvoju, u korištenju standardiziranih mjernih instrumenata, mogu stručnoj oso-

bi zaduženoj za kućne posjete poslužiti kao alat za uočavanje odstupanja u razvoju u odnosu na većinu djece (10).

Socioemocionalni razvoj u dobi do 1 godine

Dijete vrlo rano počinje pokazivati razvoj socioemocionalnih vještina. Iako je svako dijete jedinstveno za sebe, ove vještine moguće je pratiti u istim ili sličnim vremenskim razmacima. U prvoj godini života djeteta razvijaju se primarne emocije i dijete je potpuno ovisno o roditeljima i zadovoljavanje svih potreba može postići jedino uz pomoć druge osobe (1). Po rođenju, prvi kontakt ima s majkom i još od intrauterinog razvoja vezan je za nju, te mu je ona posebna i nezamjenjiva. Druga osoba najčešće je otac i on zajedno s majkom pruža sigurno utočište i zaštitu djetetu. Povezanost s roditeljima je temelj djetetovog odnosa prema sebi, vršnjacima, razvoju socioemocionalnih vještina i povjerenja u odnosu s drugima (2, 11). U ovoj dobi, djetetu je potrebno pružiti pažnju i puno ljubavi kako bi se osjećalo sigurno i zaštićeno. U kontekstu ovog istraživanja, važnost istraživanja socioemocionalnog razvoja ogleda se u smanjivanju rizika neprepoznavanja odstupanja u socioemocionalnom razvoju s ciljem rane intervencije u radu s djecom koja odstupaju od urednog razvoja ili pripadaju skupini djece s neurorizikom. Za potrebe istraživanja, potrebno je razlikovati pojam ranog razvoja i ranog prepoznavanja eventualnih odstupanja od urednog razvoja koji mogu utjecati na socioemocionalni razvoj, a time i cjelokupan razvoj djeteta.

ISPITANICI I METODE

Cilj ovog pilot istraživanja je bio utvrditi valjanost i pouzdanost eng. *Social-Emotional Assessment/Evaluation* (Socioemocionalna procjena/evaluacija) skale (SEAM) u svrhu pripreme skale za hrvatsku adaptaciju i standardizaciju mjernog instrumenta u Republici Hrvatskoj. Korištenjem SEAM skale utvrditi stupanj socioemocionalnog razvoja dojenčadi u Primorsko goranskoj županiji (PGŽ) s ciljem utvrđivanja eventualnih odstupanja od urednog razvoja i faktora koji utječu na socioemocionalni razvoj.

U ispitivanju je sudjelovalo 63 ispitanika, odnosno njihovih roditelja, s područja Primorsko-goranske županije. Sam postupak ispitivanja provodile su patronažne sestre Doma zdravlja Primorsko-goranske županije u sklopu svojih redovitih kućnih posjeta obitelji dojenčeta prema svom području nadležnosti (16). Nakon odobrenja Etičkog povjerenstva Doma zdravlja PGŽ istraživanje je provedeno u Primorsko goranskoj županiji u periodu od 12. mjeseca 2020. do 1. srpnja 2021. Patronažne sestre uključene u istraživanje pripremljene su i educirane o načinu provođenja ispitivanja. Od ispitanika (roditelja/skrbnika) zatražena je potpisana suglasnost za sudjelovanje. Pisanim putem ispitanicima je

objašnjen cilj i svrha pilot istraživanja te im je naglašeno da je istraživanje anonimno i dobrovoljno, a ako žele odustati, to mogu učiniti u bilo kojem trenutku. U uputama je bio naveden i kontakt mail i telefonski broj za bilo kakva pitanja ili nejasnoće. Sudjelovanje u istraživanju je bilo u potpunosti dobrovoljno i anonimno i s njima se postupalo u skladu s Općom uredbom o zaštiti podataka (eng. *General Data Protection Regulation, GDPR*).

SEAM upitnik

U istraživanju je primijenjen mjerni instrument SEAM skala za procjenu socioemocionalnog razvoja dojenčeta (od 2 do 18 mjeseci) kao instrument ranog prepoznavanja odstupanja u razvoju. SEAM™ je funkcionalno sredstvo za procjenu i praćenje socioemocionalnog razvoja dojenčeta, male djece i djece predškolske dobi. Osmišljen je od strane stručnjaka za praćenje razvoja djece Sveučilišta Oregon, Eugene, Sjedinjene Američke Države – *Jane Squires, Ph.D., Diane Bricker, Ph.D., Misti Waddell, M.S., Kristin Funk, M.A., LCSW, Jantina Clifforf, Ph.D. i Robert Hoselton, B.S.* SEAM procjena djeteta je upitnik koji sadrži deset mjerila s odgovarajućim stavkama ponašanja koje se ocjenjuju. Mogu ga popuniti roditelj/skrbnik samostalno ili kroz intervju uz pomoć pružatelja zdravstvene usluge (14). Mjerila predstavljaju socioemocionalne vještine koje su djeci potrebne kako bi zadovoljila vlastite potrebe, razvila osjećaj svjesnosti, uspješno sudjelovala u nizu aktivnosti u kući i zajednici, kontrolirala vlastite emocije i uključivala se u pozitivne interakcije s vršnjacima, obitelji i ostalim odraslim osobama. SEAM alat uključuje procjenu tri različita intervala djeteta. Procjenu „dojenčadi“ od 2 do 18 mjeseci (Prilog A), „male djece“ od 18 do 36 mjeseci i „djece predškolske dobi“ od 36 do 66 mjeseci. SEAM procjena djeteta može se procjenjivati prema kronološkoj dobi jer sadrži dobne okvire za primjere i mogu ga koristiti samo stručne osobe kako bi se obitelj usredotočila na ponašanja i razvojne vještine, te smanjio utjecaj na odgovore (11, 12). Svi intervali opisuju razvojne komponente djeteta, što je vidljivo u rasponu razvojnih komponenti (od 2. do 18. mjeseca), a ne njihovu kronološku dob, zato što djeca s teškoćama u razvoju mogu značajno odstupati između njihove kronološke dobi i razvojnih vještina, posebno kod djece s motoričkim poremećajima, intelektualnim teškoćama, kao i prijevremeno rođena djeca koja zbog odstupanja urednog razvoja mogu imati i odstupanje u socioemocionalnom razvoju. Iz tog se razloga kod djece s teškoćama u razvoju može se primjenjivati bilo koji interval, ne nužno onaj prema kronološkoj dobi djeteta i koristi ga samo stručnjak.

SEAM alat se sastoji od 35 pitanja koja su svrstana u deset mjerila. U svakom pitanju su ponuđena četiri odgovora (vrlo istinito, malo istinito, rijetko istinito i netočno) koja se različito

to boduju. Bodovi su za vrlo istinito 3, malo istinito 2, rijetko istinito 1 i netočno 0. S obzirom da SEAM skala nije primjenjivana u Hrvatskoj, u sklopu ovog istraživanja je dvostruko prevedena s engleskog jezika na hrvatski i obrnuto, i provjerenjena od strane stručne i lektorske profesije sukladno uputama pripreme skale za validaciju i standardizaciju od strane autora (12).

Statistička analiza

Statistička obrada podataka je provedena uz pomoć statističkog programa *Statistica* 14.1.0.8 (TIBCO, Cloud Software Group Inc.).

Procjena pouzdanosti skale je učinjena izračunom Cronbach alpha koeficijenta. Izračun koeficijenta korelacije pojedine čestice s ukupnim uratkom (item-total. correl.) korišten je u ocjeni kvalitete pitanja (koeficijent $\geq 0,40$ Vrlo dobro pitanje 0,3 – 0,39 Dobro pitanje 0,2 – 0,29 Slabo pitanje $\leq 0,2$ Loše pitanje) kako bi se iz upitnika izbacila loša pitanja.

Za određivanje valjanosti korištena je eksploratorna faktor-ska analiza (EFA), metoda analize glavnih komponenta (PCA) s Varimax rotacijom. Broj faktora određen je na temelju rezultata Cattellova scree-testa te uporabom Guttman-Keisero-va kriterija. Guttman-Keisero-va kriterij za redukciju faktora uzima u obzir vlastite vrijednosti veće od 1.

Najprije je ispitana normalnost dobivenih bodova po mjerilima uz pomoć Kolmogorov-Smirnovljevog testa. Kako se podaci nisu raspoređivali u skladu s normalnom raspodjelom, koristili smo neparametrijski Mann-Whitney U test za testiranje razlike kod dva nezavisna uzoraka. Ukoliko se radilo o porođajnoj masi dojenčeta koju smo rasporedili u tri skupine, napravili smo Kruskal-Wallis ANOVA test. Neparametrijski testovi su korišteni i jer se radi o malom broju ispitnika u nekim uzorcima.

Statistička značajnost procjenjivala se na razini $p \leq 0,05$, tj. uz 95%-tne granice pouzdanosti.

REZULTATI

Od 63 ispitana roditelja 96,8% žive zajedno, njih 50 (79,4%) u vlastitom stanu ili kući. U 74,6% kućanstava majka i otac čine ostatak obitelji. Najveći postotak majki (39,7%) kao i očeva (58,7%) imao je srednju stručnu spremu. Prosječna dob majki iznosila je 34,2, a očeva 37,2 godine. Srednja porođajna masa djece je iznosila 3464,9 g sa standardnom devijacijom (SD) 508,8 g, dok je duljina u prosjeku 50,7 cm (SD=2,1 cm). Apgar indeks ispitivane skupine iznosio je 9,85 (SD=0,42). Ostali opći podaci se nalaze u Tablici 1.

U pregledu čestica SEAM skale ustanovljeno je da su svi ispitnici odgovorili na pitanje „Beba pokazuje interes za Vas ili

TABLICA 1. Podaci o dojenčetu

		N	%
Dijete po redu	prvo	36	57,1
	drugo	16	25,4
	ostalo	11	17,5
Broj djece u obitelji	jedno	37	58,7
	dvoje	21	33,3
	više	5	7,9
Trudnoća po redu	prva	29	46
	druga	25	39,7
	tri i više	9	14,3
Trudnoća	uredna	54	85,7
	rizična	9	14,3
Mjesec poroda	osmi	2	3,2
	deveti	57	82,5
	deseti	4	6,3
	ostalo	1	1,6
Porod	uredan	45	71,4
	carski rez	16	25,4
	težak	1	1,6
	vakuum	1	1,6
Stanje djeteta	uredno	58	92,1
	žutica	4	6,3
	plodna voda	1	1,6

ostale članove obitelji" (1.1) i „Beba vam se smješka" (2.1) vrlo je istinito. Ove dvije čestice nisu diskriminativne pa ih odbacujemo kao i pitanja „Beba gleda u ili prema zvukovima i vizualnim podražajima" (5.1), Beba redovito urinira i ima stolicu (10.1) i Beba zaspi uz nekoliko poteškoća (10.3) jer je koeficijent korelacije pojedine čestice s ukupnim uratkom bio manji od 0,2 te nam ta pitanja spadaju u „loša" pitanja koja je preporučeno izbaciti (17). Nakon što su isključene i ove dvije čestice dobiven je koeficijent α koji iznosi 0,92, što spada u odličnu pouzdanost upitnika, odnosno, primijenjeni upitnik pokazao se kao pouzdani instrument za procjenu i praćenje djeteta u dobi od 2 do 18 mjeseci.

Kod određivanja valjanosti u EFA u skladu s Guttman-Keislerovim kriterijem smo reducirali na četiri faktora. Vlastite vrijednosti danih faktora su iznosile 33,8%, 11,7%, 7,31% i 6,71%. U tom slučaju zbroj svojstvenih vrijednosti iznosi 59,6% i objašnjava postotak varijance koji postizemo s ovih četiri faktora. Za svaki faktor smo uključili čestice s minimalnom vrijednosti faktorskih koeficijenata (opterećenje, λ) od 0,5 jer se ovakva opterećenja smatraju značajnim. Pitanja 4.1., 6.2., 7.1. i 7.2. imaju vrijednosti faktorskih koeficijenata manje od 0,5 pa smo ih eliminirali iz upitnika. U prvi faktor je uključeno 8 čestica, u drugi 9, u treći 6 i u četvrti 3. Pouzdanost faktora 3 (Emocionalna samoregulacija djeteta) i 4 (Ostvarivanje odnosa) iznosi 0,70, što spada u prihvatljivu,

TABLICA 2. Rezultati faktorske analize

Faktor 1. Igra i međusobni odnos ($\alpha_1=0,86$) Vlastite vrijednosti = 33,8% varijance	λ
2.3. Beba se smješka i smije na prizore i zvukove	0,64
4.4. Beba reagira na tuđu uznemirenost tražeći utjehu za sebe.	0,63
5.4. Beba dijeli s Vama pozornost i događaje.	0,77
6.4. Beba puže ili hoda na maloj udaljenosti od vas.	0,71
7.3. Beba prepoznaje svoje ime.	0,50
8.2. Beba sudjeluje u motornim aktivnostima par minuta i dulje.	0,60
8.3. Beba gleda u knjige ili slike par minuta ili dulje.	0,72
10.4. Beba konzumira raznovrsnu prehranu primjerenu dobi.	0,67
Faktor 2. Komunikacija ($\alpha_2=0,88$) Vlastite vrijednosti = 11,7% varijance	λ
2.2. Beba se smješka poznatim ljudima	0,79
3.2. Beba reagira na Vaše umirivanje kada se uznemiri.	0,88
3.3. Beba je sposobna sama sebe smiriti kad je uznemirena.	0,52
4.2. Beba gleda i primjećuje Vas i ostale članove obitelji.	0,67
4.3. Beba gleda i uočava tuđe emocionalne reakcije.	0,65
5.2. Beba ostvaruje kontakt očima s Vama i drugima.	0,91
5.3. Beba se usredotočuje na događaje koje joj pokazujete Vi ili drugi.	0,63
6.3. Beba istražuje okolinu.	0,56
8.1. Beba sudjeluje u jednostavnoj rutini i igri s vama.	0,55
Faktor 3. Emocionalna samoregulacija djeteta ($\alpha_3=0,70$) Vlastite vrijednosti = 7,31% varijance	λ
1.2. Beba Vam daje do znanja ako treba pomoć ili utjehu.	0,79
1.3. Beba reagira na Vas ili ostale članove obitelji.	0,51
1.4. Beba pokreće i sudjeluje u komunikaciji.	0,60
3.1. Beba se uspijeva smiriti nakon uzbuđujuće aktivnosti.	0,56
9.2. Beba slijedi jednostavnu rutinu uz vašu pomoć.	0,56
10.2. Beba jede i uredno dobiva na težini.	0,74
Faktor 4. Ostvarivanje odnosa ($\alpha_4=0,70$) Vlastite vrijednosti = 6,71% varijance	λ
6.1. Beba istražuje ruke i noge.	0,62
9.1. Beba otvara usta za hranu.	0,72
9.3. Beba surađuje kod promjene pelene i presvlačenja.	0,76

odnosno faktor 1 (Igra i međusobni odnos) i 2 (Komunikacija) u dobru pouzdanost. Detaljni podaci su navedeni u Tablici 2.

Naš SEAM upitnik je ostao sa 26 čestica koje su korištene u daljnjem istraživanju. Zbrojeni su bodovi po pojedinom česticama, te su uspoređeni bodovi za porođajnu masu dojenčeta koja je svrstana u tri skupine (1600-2600; 2601-3500; i 3501-5000 grama).

Također je ispitana razlika kod skupine s urednom i rizičnom trudnoćom, te prijevremenog i redovnog, kao i urednog i potpomognutog poroda. Uzeli smo u obzir i uredno i rizično stanje djeteta i ispitali razlike u broju bodova. Rezultati

TABLICA 3. Testiranje razlike u bodovima za porođajnu masu, tip trudnoće, vrijeme poroda i stanje djeteta

	N	medijan	p
Porođajna masa (g)			
1600-2600	2	76,5	0,895
2601-3500	31	84	
3501-5000	30	83	
Trudnoća			
uredna	54	82	0,616
rizična	9	83	
Porod (vrijeme)			
prije	2	73,5	0,336
redovno	61	83	
Porod (tip)			
uredan	45	83	0,547
potpomognut	18	79	
Stanje djeteta			
uredno	58	83	0,899
rizično	5	84,5	

ispitivanja se nalaze u Tablici 3. Uz brojeve ispitanika po pojedinim skupinama (N) i srednje vrijednosti u Tablici 3. se nalaze razine statističke značajnosti (p) napisane na tri decimale. Prikazani rezultati pokazuju da ne postoje značajne razlike za cijeli SEAM alat.

RASPRAVA

U rodilištima Republike Hrvatske u 2021. g. je ukupno zabilježeno 36346 poroda s ukupno 36991 rođenih. Prema dobi majke najveći dio poroda, 34%, zabilježen je u dobnoj skupini roditelja 30 – 34 godine. Slijede porodi majki u dobi 25 – 29 godina u udjelu od 28%, 20% poroda je zabilježeno u dobnoj skupini 35 – 39 godina, a porodi u ostalim dobnim skupinama su zastupljeni u znatno manjim udjelima. Prema porodnoj masi kao jednom od pokazatelja perinatalne zaštite, ali i socijalno-gospodarskih prilika, Hrvatska se ne razlikuje od zapadnoeuropskih ni većine „posttranzicijskih“ zemalja. Prema podacima zadnjeg Euro-Peristat-Reporta za 2015. godinu Hrvatska pripada skupini europskih zemalja s nižim udjelom rođenih porodne mase < 2500 grama (raspon 4,2% – 10,6%). Najviše živorođenih je porodne mase 3000 – 3500 grama (13088, odnosno 35,5%) što potvrđuju i sociodemografski podaci ovog istraživanja, kao i da su većina novorođenčadi prva djeca u obitelji 36 (57,1%) iz uredne trudnoće, prve trudnoće po redu 29 (46%), uredne trudnoće 54 (85,6%), urednog poroda 45 (71%), urednog stanja djeteta 58 (92,1%) što je u skladu sa podacima zapadnoeuropskih zemalja (15).

Nakon što smo ispitali unutarnju koezistenciju instrumenta i izračunali Cronbach alpha koeficijent, isključili smo ukupno pet čestica i dobili koeficijent koji iznosi 0,92. što spada u odličnu pouzdanost upitnika.

Psihometrijske karakteristike pokazale su da je instrument valjan za procjenu i praćenje djeteta u dobi od 2 do 18 mjeseci za procjenu socioemocionalnog razvoja kada smo reducirali na četiri faktora: 1. Igra i međusobni odnos-koeficijent pouzdanosti-0,86, 2. Komunikacija- koeficijent pouzdanosti-0,88, 3. Emocionalna samoregulacija djeteta-koeficijent pouzdanosti-0,70, 4. Ostvarivanje odnosa-koeficijent pouzdanosti-0,70. *Sjoe i sur.* u istraživanju iz 2014.godine u Danskoj verziji SEAM upitnika također su dobili visoke koeficijente pouzdanosti – od 0,79 do 0,91 za dojenčad; 0,82 do 0,91 za malo dijete, i 0,90 do 0,94 za dijete predškolske dobi. Istraživanje je provedeno na velikom broju ispitanika – 9827 djece u dobi do šest godina, te se pouzdanost SEAM upitnika pokazala kao dobra do odlična za sve dobne skupine, uz iznimku za dojenčad čiji su koeficijenti ukazali na adekvatnu pouzdanost (18).

Istraživanja pouzdanosti SEAM skale pokazuju da je primjenjivana i u drugim zemljama kao i na različitoj populaciji djece te se pokazala kao značajan instrument u procjeni socioemocionalnog razvoja djeteta kao ključnog razvojnog zadatka u djetetovu životu (17, 18).

Socioemocionalni razvoj odvija se putem socioemocionalnog učenja započevši od najranijih dana djetetova života (19). Na djetetov uredan razvoj utječe rana emocionalna regulacija u kontekstu međusobne interakcije majke i djeteta (20), kao specifičnog oblika dijade što majci omogućuje da oblikuje razvoj emocionalne regulacije svog djeteta.

S obzirom na dobivene rezultate ovog istraživanja vidljivo je da su većina dojenčadi iz prvih trudnoća, 96,8% roditelja žive zajedno i to njih 50 (79,4%) u vlastitom stanu ili kući. U 74,6% kućanstava majka i otac čine ostatak obitelji što osigurava preduvjete razvoja sposobnosti emocionalne regulacije koji su pod utjecajem interakcije s članovima obitelji, odnosno primarnim skrbnicima (21).

Rezultati ovog istraživanja pokazuju da ne postoje statistički značajne razlike u socioemocionalnom razvoju s obzirom na tijek trudnoće, poroda, uredno i rizično stanje djeteta te se može zaključiti da su roditelji djece osigurali sve preduvjete urednog socioemocionalnog razvoja bez obzira na eventualne faktore rizika. Uspostavljanje sigurne privrženosti kroz igru, međusobni odnos i komunikaciju koju karakterizira odnos pun povjerenja, topline, zadovoljavanje djetetovih potreba, osjećaj zaštićenosti i sigurnosti, povezano je s razvojem samoregulacije djeteta, a time i optimalnog socioemocionalnog razvoja (20, 22).

Kako je broj ispitanika mali, za učiniti ispitivanje valjanosti faktorskom analizom dobiveni su rezultati koji su prihvatljivi ili čak dobri te očekujemo da sa većim brojem ispitanika dobijemo još bolje rezultate (23).

ZAKLJUČAK

U skladu s postavljenim ciljem istraživanja i dobivenih rezultata vidljivo je da SEAM upitnik za procjenu socioemocionalnog razvoja u ovom istraživanju valjan i pouzdan. Rezultati istraživanja su pokazali da djeca pokazuju optimalan socioemocionalni razvoj bez obzira na faktore rizika te da su roditelji osigurali sve preduvjete urednog socioemocionalnog razvoja. Primjena SEAM skale u ovom istraživanju pokazala se vrlo značajnom u procjeni socioemocionalnog razvoja djeteta u svrhu pripreme skale za hrvatsku adaptaciju i standardizaciju mjernog instrumenta u Republici Hrvatskoj kako bi se mogla implementirati i primjenjivati u radu patronažnih sestara u sklopu sveobuhvatne patronažne skrbi za dojenčice koje provode procjenu zdravstvenog stanja i razvoja dojenčeta (25, 26, 27).

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Privitak A.**SOCIOEMOCIONALNA PROCJENA DJETETA
DOJENČE – UPITNIK ZA DJECU U DOBI OD 2-18 MJESECI**

Socioemocionalna procjena djeteta (eng. *Social-Emotional Assessment / Evaluation Measure, SEAM*) je alat za procjenu i praćenje djeteta. Alat je osmišljen od strane stručnjaka za praćenje razvoja djece Sveučilišta Oregon, Eugene, Sjedinjene Američke Države – Jane Squires, Ph.D., Diane Bricker, Ph.D., Misti Waddell, MS., Kristin Funk MA, LCSW; Jantina Clifforf Ph.D. i Robert Holselton, BS. Razvijen je kako bi pomogao u ranom prepoznavanju socioemocionalnih poteškoća i poremećaja u ponašanju u prvim godinama života, identificirao određena područja potrebe djeteta i omogućio praćenje kroz izvjesno vrijeme. Alat se sastoji od dva dijela – procjene djeteta i procjene obitelji. Vremenski okvir za provedbu ovog alata po razvojnoj dobi djeteta je 15-30 minuta po jednom alatu, a 10-15 minuta za procjenu obitelji.

UPUTE:

Pred Vama se nalazi upitnik za procjenu djeteta u dobi od 2-18 mjeseci. Molimo Vas da pročitate svaku stavku SEAM upitnika i razmislite o ponašanju Vašeg djeteta prije nego li odaberete odgovor. Možda ćete trebati promotriti svoje dijete prije nego li odgovorite. Svaka stavka popraćeno je s nekoliko primjera kako bi Vam dali ideje o tome kako određeno ponašanje treba izgledati. Ta se ponašanja mogu prikazati na različite načine ovisno o dobi Vašeg djeteta, njegovoj razvojnoj fazi i očekivanju Vaše kulture i obitelji. Način na koji Vaše dijete pokazuje određeno ponašanje može biti ili ne mora biti ilustrirano primjerima. Ne očekujte da će sva djeca pokazivati svako ponašanje. Ponuđena su Vam četiri odgovora – VRLO ISTINITO, MALO ISTINITO, RIJETKO ISTINITO i NETOČNO.

PRIMJER:

Beba reagira na vas ili ostale osobe koje se o njoj brinu, potvrdite odgovor ispod

VRLO JE ISTINITO ako Vaša beba redovito reagira na Vas ili ostale osobe koje se o njoj brinu (većinu vremena)

MALO JE ISTINITO ako Vaša beba ponekad reagira na Vas ili ostale osobe koje se o njoj brinu

RIJETKO ISTINITO ako Vaša beba rijetko ili je samo jednom reagira na Vas ili ostale osobe koje se o njoj brinu

NETOČNO ako Vaše dijete nikako ne reagira na Vas ili ostale osobe koje se o njoj brinu.

Osim toga, svaka stavka ima krug koji možete označiti kako bi istaknuli zabrinutost za određenu stavku. Svaka stavka također ima trokut koji možete označiti ako želite da ova stavka postane fokusna zona za vaše dijete.

Za bilo kakva pitanja, informacije ili nejasnoće, slobodno me kontaktirajte putem maila sandra.boskovic@uniri.hr ili GSM 0912102485.

PODACI O MAJCI	PODACI O OCU
GOD. ROĐENJA:	GOD. ROĐENJA:
STRUČNA SPREMA:	STRUČNA SPREMA
ZANIMANJE:	ZANIMANJE:
ZAPOSLENA (GDJE?):	ZAPOSLEN (GDJE?):

1. STRUKTURA OBITELJI:

a) roditelji žive zajedno

c) roditelji žive odvojeno

d) roditelji su razdvojeni, a roditelj koji živi s djetetom osnovao je novu zajednicu

2. **ODRASLI ČLANOVI OBITELJI:** a) majka b) otac c) baka d) djed e) teta f) ujak g) _____

3. **OBITELJ ŽIVI U:** a) vlastitom stanu b) vlastitoj kući c) podstanari

PODACI O DJETETU

1. **DJETE JE:** a) prvo b) drugo c) _____

2. **BROJ DJECE U OBITELJI I GODINE ROĐENJA?** _____

PODACI O TRUDNOĆI I PORODU

1. **TRUDNOĆA PO REDU** _____

2. **DA LI JE TRUDNOĆA BILA RIZIČNA?**

a) NE

b) DA (Zbog čega?) _____

3. **POROD OD** _____ **MJESECI**

4. **POROD:** a) uredan b) carski rez c) težak d) vakuum e) _____

5. **POROĐAJNA MASA I DUŽINA DJETETA** _____

6. **STANJE DJETETA PRI PORODU:** a) uredno b) žutica c) nagutalo se plodne vode d) _____

7. **APGAR** _____

Datum provođenja upitnika: _____

Osoba koja popunjava upitnik (zaokružiti): MAJKA / OTAC / SKRBNIK / STRUČNJAK

Molimo Vas pažljivo pročitajte svaku stavku i označite **X** za tvrdnju koja najbolje opisuje ponašanje Vašeg djeteta. Ukoliko Vas stavka zabrinjava označite \bigcirc ili \triangle ukoliko smatrate da bi trebali obratiti pozornost na određeno ponašanje Vašeg djeteta.

		vrlo istinito	malo istinito	rijetko istinito	netočno	zabrinutost	obratiti pozornost
D-1.0 BEBA – ZDRAVA INTERAKCIJA S DRUGIMA							
1.1	Beba pokazuje interes za Vas ili ostale članove obitelji.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Prati vas očima. Stiša se kad joj se priča. Gleda Vas kad ju dodirujete. Pokazuje zadovoljstvo kad se vratite. Traži Vašu pozornost ili pozornost ostalih članova obitelji.						
1.2	Beba Vam daje do znanja ako treba pomoć ili utjehu.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Daje Vam do znanja kad je gladna ili ju je potrebno presvući. Pokazuje emocije kao što su strah od glasnih zvukova ili novih ljudi, sramežljivost i iznenađenost. Koristi se gestama ili riječima kako bi Vam dalo do znanja što treba.						
1.3	Beba reagira na Vas ili ostale članove obitelji.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Smije se i proučava Vaše lice. Poseže za Vama. Podiže ruke da ju podignete. Reagira na vlastito ime. Maše "pa-pa". Daje zagrljaje. Igra se s Vama npr. igra "Ku-ku".						
1.4	Beba pokreće i sudjeluje u komunikaciji.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Guguta ili vokalizira kad joj govorite. Guguće, brblja ili Vam se smješka. Traži Vas kada uđete u prostoriju. Glasno se smije kao odgovor na nešto što napravite. Dolazi Vam kad mu pokažete da Vam priđe. Proizvodi jednostavne zvukove ili izgovara jednostavne riječi.						
D-2.0 BEBA – IZRAŽAVANJE EMOCIJA KOD DJETETA							
2.1	Beba vam se smješka.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Smješka se kad se i Vi smješkate. Smješka se kad joj pričate.						
2.2	Beba se smješka poznatim ljudima.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Smješka se kada joj se smješka dadilja ili ostale poznate odrasle osobe. Smješka se odraslima i drugoj djeci.						
2.3	Beba se smješka i smije na prizore i zvukove.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Smješka se ili smije na pokretne igračke. Smješka se ili smije kad čuje smiješne zvukove.						
D-3.0 BEBA – SOCIJALNO EMOCIONALNI ODGOVORI UZ PODRŠKU SKRBNIKA							
3.1	Beba se uspijeva smiriti nakon uzbuđljive aktivnosti.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\bigcirc	\triangle
	Primjeri: Smiri se kada se nosi ili ljuljuška. Smiri se nakon aktivne igre kao što je škakljanje. Prebacuje se iz aktivne igre (npr. igra „lovce“) na mirniju aktivnost.						

		vrlo istinito	malo istinito	rijetko istinito	netočno	zabrinutost	obratiti pozornost
3.2	Beba reagira na Vaše umirivanje kada se uznemiri.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Smiri se kada ju tješite. Smanjuje plakanje ili prestaje plakati kad ju podignete i/ili joj pričate. Traži Vašu utjehu kad se uznemiri. Prestaje plakati ili biti nemirna kada Vas vidi ili čuje.						
3.3	Beba je sposobna sama sebe smiriti kad je uznemirena.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Nastavlja se igrati s poznatom odraslom osobom nakon kratkog razdoblja uznemirenosti kad odete. Tješi se držeći posebnu dekicu ili sišući prst. Smiruje se nakon par minuta kad ju stavite u krevet. Nastavlja se igrati sama sa sobom nakon kraćeg perioda plakanja zbog uznemirenosti (npr. nakon što je pala).						
D-4.0 BEBA – POKAZIVANJE EMPATIJE PREMA DRUGIMA							
4.1	Beba oponaša Vaše facijalne ekspresije.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Otvora usta kad i Vi. Namršti se kad i Vi.						
4.2	Beba gleda i primjećuje Vas i ostale članove obitelji.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Gleda Vas ili ostale članove obitelji. Prati pogledom Vas ili ostale članove obitelji kad se krećete/kreću prostorijom.						
4.3	Beba gleda i uočava tuđe emocionalne reakcije.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Gleda u osobu koja uđe u prostoriju, umiruje se i utišava kao odgovor na glasne i uznemirujuće zvukove. Prestaje s aktivnošću i gleda u osobu koja joj se obraća, smješka se ako joj se osoba osmjehe. Smješka se i smije kad to rade ostali.						
4.4	Beba reagira na tuđu uznemirenost tražeći utjehu za sebe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Traži Vašu utjehu kad su drugi uznemireni. Stišava se kad su drugi ljudi uznemireni te traži stvari za utjehu.						
D-5.0 BEBA – POKAZIVANJE PAŽNJE I DRUŽENJE S DRUGIMA							
5.1	Beba gleda u ili prema zvukovima i vizualnim podražajima.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Gleda prema Vama kad čuje vaš glas. Okreće se prema Vama kad pjevate ili prema glazbi koju čuje. Utišava se i gleda u smjeru zvukova ili vizualnih događaja.						
5.2	Beba ostvaruje kontakt očima s Vama i drugima.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Gleda Vas u oči kad ju gledate dok pričate s njom.						
5.3	Beba se usredotočuje na događaje koje joj pokazujete Vi ili drugi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: Gleda u životinju ili osobu koju joj pokazujete. Prati Vaš pogled kako bi pogledala u isti objekt ili osobu koju Vi gledate.						
5.4	Beba dijeli s Vama pozornost i događaje.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>	<input type="checkbox"/>
	Primjeri: S Vama gleda istu osobu ili objekt. S Vama gleda sliku ili pokazuje na igračku ili objekt koji želi da pogledate. Pokazuje na objekte kako bi pridobila Vašu pozornost. Preuzima ulogu u igrama kao što su "Ku-Ku" i "Veliki/Velika"						

		vrlo istinito	malo istinito	rijetko istinito	netočno	zabrinutost	obratiti pozornost
D-6.0 BEBA – ISTRAŽIVANJE RUKU I NOGU TE OKRUŽENJA							
6.1	Beba istražuje ruke i noge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Skuplja ruke i maše prstima. Hvata stopalo rukama ili ih stavlja u usta kad je na leđima.</i>						
6.2	Beba istražuje igračke i materijale.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Hvata objekte ili ljude na dohvata ruke. Drži i istražuje igračku rukama ili ustima. Puže prema najdražoj igrački ili skrbniku. Igračku ili druge objekte koristi na različite načine.</i>						
6.3	Beba istražuje okolinu.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Poseže za igračkama koje su ispred nje. Okreće glavu kako bi vidjela tko je iza nje. Puže prema objektima na podu kako bi ih bolje vidjela i opipala. Počinje trčati, penjati se i skakati.</i>						
6.4	Beba puže ili hoda na maloj udaljenosti od vas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Napušta Vas kako bi istražila novu igračku, objekt ili osobu te ostaje udaljena od Vas na nekoliko minuta. Puže par metara od Vas gledajući prema Vama. Puže ili hoda uokolo istražujući ljude, mjesto i objekte.</i>						
D-7.0 BEBA – POZITIVNA SLIKA O SEBI							
7.1	Beba privlači pozornost na sebe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Blebeće ili cvili kad uđete u prostoriju kako bi Vam dala do znanja da je prisutna. Zove Vas da ju uočite (npr. "Tata/Mama", "Pogledaj me!").</i>						
7.2	Beba se smješka ili smije vlastitoj slici.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Smješka se vlastitom odrazu u ogledalo. Smije se vlastitom odrazu u izlogu. Pokazuje na sebe u ogledalo ili na fotografiji. Pokazuje svoju fotografiju.</i>						
7.3	Beba prepoznaje svoje ime.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Okreće se prema Vama kada izgovorite njeno ime.</i>						
D-8.0 BEBA – REGULACIJA I RAZINA AKTIVNOSTI							
8.1	Beba sudjeluje u jednostavnoj rutini i igri s vama.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Gura se naprijed-nazad s Vama. Primiče se kad ju hranite. Smije se kad ju podižete. Gleda Vas u oči kad joj pjevate pjesmice. Igra se jednostavnih igara kao što su "Ku-ku", "Prstići". Skuplja igračke i odlaže ih u kutiju za igračke.</i>						
8.2	Beba sudjeluje u motornim aktivnostima par minuta i dulje.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: <i>Drži ruke na sredini tijela. Igračke stavlja u usta, premješta ih iz ruku u usta. Male igračke hvata s rukama. Dodaje Vam loptu.</i>						

		vrlo istinito	malo istinito	rijetko istinito	netočno	zabrinutost	obratiti pozornost
8.3	Beba gleda u knjige ili slike par minuta ili dulje.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Gestikulira ili pokazuje na sliku u knjizi. Proučava slike iz časopisa ili knjige. Proučava omiljenu knjigu 2-3 min						
D-9.0 BEBA – SURADNJA U DNEVNIM RUTINAMA I ZAHTJEVIMA							
9.1	Beba otvara usta za hranu.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Otvora usta za dojenje ili bočicu. Otvora usta za dojenje, bočicu i žlicu.						
9.2	Beba slijedi jednostavnu rutinu uz vašu pomoć.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Objeručke hvata bočicu ili prsa tijekom hranjenja. Drži ili pridržava bočicu tijekom hranjenja. Podiže ruke da joj se obuče majica. Uz pomoć pije iz čaše.						
9.3	Beba surađuje kod promjene pelene i presvlačenja.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Ostaje na leđima barem kratko vrijeme. Ostaje mirna i surađuje dok joj se mijenja pelena ili odjeći						
D-10.0 BEBA – ADAPTIVNE VJEŠTINE							
10.1	Beba redovno urinira i ima stolicu.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Urinira više puta dnevno. Uglavnom svaki dan ima stolicu.						
10.2	Beba jede i uredno dobiva na težini.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Dojenje ili bočica po dnevnoj rutini. Jede žitarice, voće ili drugu hranu. Poseže za priborom za jelom. Pije iz čaše „kljunašice“. Pije iz čaše uz pomoć. Koristi se žlicom.						
10.3	Beba zaspi uz nekoliko poteškoća.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Zaspi dok ju ljuljuškate. Umiri se i odlazi na spavanje. Zaspi unutar 30 minuta kod dnevnog drijemanja ili spavanja po noći. Spava oko 10-14 sati na dan (uz dnevna drijemanja za mlađu djecu).						
10.4	Beba konzumira raznovrsnu prehranu primjerenu dobi.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	○	△
	Primjeri: Uzima hranu i guta ju. Jede različite teksture (kašice, meso, kruh, voće, povrće). Jede tzv. finger food* (krekeri, štapići).						

* eng. finger food – prstima

SUMMARY

Assessment of infant socioemotional development in Primorje-Gorski Kotar County

Sandra Bošković, Andrica Lekić, Hrvoje Vlahović

Objective: The importance of researching the socio-emotional development of a child is reflected in the prevention of the risk of deviations in socio-emotional development with the aim of early intervention in work with children who deviate from normal development or belong to the group of children at neurological risk. The aim of the work was to determine the validity and reliability of the socio-emotional assessment scale for standardization of the measurement instrument in the Republic of Croatia and to determine the level of socio-emotional development of young children in order to determine possible deviations from orderly development and factors influencing socio-emotional development.

Methods: The socio-emotional rating scale was used in the study as a measurement tool to assess the socio-emotional development of infants (from 2 to 18 months) as an instrument for early detection of developmental deviations. Sixty-three parents from Primorsko-Goranska County participated in the survey.

Results: The psychometric properties of the socio-emotional scale showed that the instrument is valid for assessing socio-emotional development with Cronbach $\alpha=0.92$. At the same time, the results showed that there were no statistically significant differences in the children's socio-emotional development in relation to birth weight, type of pregnancy, time and type of delivery, and the child's condition, indicating that the children's parents created all the conditions for promoting orderly socio-emotional development, regardless of possible risk factors.

Conclusion: The obtained results show that the questionnaire for assessing socio-emotional development in this research is valid and reliable. The research has clearly demonstrated the importance of early assessment of a child's socio-emotional development to prevent developmental abnormalities through early intervention. The importance of assessing the validity of the questionnaire ensures its application in the work of outpatient nurses who assess infant health and development as part of comprehensive outpatient infant care.

Key words: INFANT; QUESTIONNAIRE; COMMUNITY SURVEY; CHILD DEVELOPMENT

Characterization of electronic device use among children and adolescents aged 6 to 14

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Introduction: Children and adolescents use computers, cell phones, and tablets, among other electronic devices, daily in non-academic activities. It is essential to characterize the impact these devices have on the socialization, interaction, and learning processes in this population segment. We should also investigate possible harmful effects that may be related to their use. The objective was to characterize how these devices are used and their impact on school performance, behavior, and physical activity in children and adolescents from 6 to 14 years of age.

Materials and methods: This is a cross-sectional analytic study of 510 schoolchildren ages 6 to 9 and 10 to 14 from Bogotá and Cundinamarca, Colombia. They were surveyed with a 38-question survey characterizing the use of the devices and the symptoms of anxiety and depression, conflict resolution, sleep, and school performance.

Results: The average age for initiation on the use of devices was four years. Cell phones were the most used in both groups (56.3% and 78.04%). Parents monitor the use of the device in 80% of cases. 40% of the time, device usage was greater than 90 minutes per day. About 16% reported sleep disturbance, frustration (48%), emotional lability (20%), and suicidal ideations (11%) also were reported. 19% did not play with their peers, and 7% did not report having close friends.

Conclusions: This study shows the high exposure to electronic devices from an early age and their relation to behavioral factors. Future studies should explore the relationship between these factors and electronic devices in depth.

Key words: MOBILE DEVICES; CHILD; ADOLESCENT; SCREEN TIME; ACADEMIC PERFORMANCE

INTRODUCTION

From an early age, children and teenagers are surrounded by Information and Communication Technologies (ICTs) on electronic devices. These devices are technological tools for storing, transporting, transforming, and visualizing information. Such devices include television, DVD/Blu-ray, video games, desktop computers, tablets, smartphones, gaming consoles, laptops, headphones, sound players, and smartwatches (1).

Generations born in the later years of the 20th century are now considered digital natives, a term coined by Mark Prensky in 2001 (2). This fact has affected social and family inter-

action, school performance, sleep dynamics, psychological well-being, obesity, sleep problems, aggressive behavior, and attention problems compared to previous generations (1–5).

This change in the daily life of the new generations brings benefits when technology usage is appropriate. These include the chance to gain knowledge early on, discover novel

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ideas and information, access diverse learning opportunities, collaborate with others on projects, communicate with individuals across distances, establish supportive social networks, acquire valuable information and knowledge, and explore innovative educational approaches for promoting health and preventing issues (1, 2, 4). In this sense, studies have reported that high-quality television programs can improve the cognitive, linguistic, and social results of children between 3 and 5 years of age (1). For example, Anderson et al. found a significant positive correlation ($p < 0.001$) between the viewing of educational programs (Sesame Street-type) by preschool-age children and the grades average (6). In the same way, a significant negative correlation ($p < 0.05$) between the viewing of violent programs by male adolescents was found (6).

Early exposure to technology can negatively affect children's behavior and physical and mental health. These consequences are often related to the amount of time spent on devices, inadequate supervision, the type of content viewed, the availability of these devices, their global reach, and their easy accessibility to different population. (1, 2, 4). All of the above makes the current evidence contradictory concerning the use of the devices.

This study aims to describe and compare non-academic use of electronic devices at home among children and adolescents aged 6 to 14 before the SARS-CoV-2 pandemic. The study will focus on students from schools in Colombia, such as Bogotá and Cundinamarca. It will evaluate the impact of electronic devices on their behavior as it relates to various variables such as sleep disturbances, physical activity, frustration, sociability, behavior, and conflict resolution.

METHODS

An analytical cross-sectional study was conducted on a sample of 255 boys and girls aged between 6 and 9 and 255 adolescents aged between 10 and 14 who attended schools in Bogotá and Cundinamarca, Colombia. Based on an outcome less than 10% prevalent, a power of 80%, and a significance level of 0.05, the sample size was initially estimated at 510 participants per group for 1020 participants. However, due to the impact of the pandemic, the sampling was halted, resulting in only 255 participants per group being obtained.

The study inclusion criteria were children between the ages of 6 and 14 who expressed a desire to participate, obtained explicit assent, and whose parents provided informed consent. Children with pre-existing diagnoses of behavioral or underlying mental illness (whether genetic or congenital) were not included. The data was collected via a simple random sampling method, utilizing manual surveys completed by parents of children between 6 and 9 years old and self-administered surveys for children between 10 and 14.

All survey data was stored and transcribed into an Excel file, accessible only to researchers. Forty surveys were excluded due to more than 80% missing data.

The survey used in the study was created using the following instruments in their Spanish versions: Reporting Questionnaire for Children RQC-10, which consisted of an intermediate segment of 10 questions that identified signs and symptoms of childhood anxiety and depression (7); the BASC scale (Behavior Assessment System for Children) which analyzed conflict resolution, behavior disorders, sociability, and depression (8); and a sleep scale with a segment of 5 questions that evaluated sleep disturbances (9). Additional inquiries were added to assess the variables mentioned earlier related to low academic performance, sleep disturbances, physical activity, frustration, sociability, behavior, and conflict resolution.

A descriptive statistical analysis of both continuous and categorical variables was performed. It examined the central tendency and dispersion measures for the continuous variables and frequencies for the categorical variables. Additionally, a stratified analysis was done to better understand the relationships and patterns within the data. Bivariate analyses were performed to see the possible correlations between the time of exposure to electronic devices and the behavioral variables. Data were analyzed using Epidat 4.2.

The study did not follow up with the participants; therefore, we did not store any contact details. This investigation followed the national recommendations established in resolution 8430 of 1993 of the Ministry of Health, being classified in the category without risk by article N.11. Additionally, the Ethics and Research Committee of the Pontificia Universidad Javeriana and Javesalud approved the research protocol.

RESULTS

The demographic characteristics of the 510 respondents are in Table 1. The average age for each group was 7.8 years and 12 years. The predominant sex was female in both groups (64.13% and 58.1%). The most frequent socioeconomic status was 5 (middle-high class). The average age for beginning the use of electronic devices in the first group was 4.3 years, and for the second was 6.4 years. Surveillance and control by parents for the usage of electronic devices were 92.5% and 80.4%, respectively. There were three schools in Bogotá and four in Cundinamarca. Most of them were bilingual schools. In the group of 6 to 9-year-olds, 6.7% of them had lost some school year. In the 10 to 14 years group, 31% reported failing courses the previous year.

Sports practice and reading were the predominant activities, with sports being the activity with the longest dedica-

TABLE 1. Demographic characteristics

Variable	6 to 9 (N=255)	10 to 14 (N=255)	Overall (N=510)
Sex			
F	164 (64.3%)	150 (58.4%)	314 (61.4%)
M	91 (35.7%)	105 (41.2%)	196 (38.4%)
Age			
Mean (SD)	7.76 (0.985)	11.9 (1.37)	9.85 (2.41)
Weight			
Mean (SD)	26.2 (5.29)	41.8 (8.97)	33.8 (10.7)
Missing	50 (19.6%)	61 (23.9%)	111 (21.8%)
Height			
Mean (SD)	1.81 (7.29)	1.51 (0.111)	1.66 (5.05)
Missing	79 (31.0%)	64 (25.1%)	143 (28.0%)
BMI			
Mean (SD)	16.4 (2.53)	18.0 (2.62)	17.2 (2.69)
Missing	83 (32.5%)	84 (32.9%)	167 (32.7%)
Grade			
1	103 (40.4%)	0 (0%)	103 (20.2%)
2	80 (31.4%)	0 (0%)	80 (15.7%)
3	58 (22.7%)	7 (2.7%)	65 (12.7%)
4	8 (3.1%)	49 (19.2%)	57 (11.2%)
5	5 (2.0%)	16 (6.3%)	21 (4.1%)
6	0 (0%)	69 (27.1%)	69 (13.5%)
7	0 (0%)	51 (20.0%)	51 (10.0%)
8	0 (0%)	33 (12.9%)	33 (6.5%)
9	0 (0%)	25 (9.8%)	25 (4.9%)
10	0 (0%)	2 (0.8%)	2 (0.4%)
Missing	1 (0.4%)	3 (1.2%)	4 (0.8%)
Bilingual School			
Yes	216 (84.7%)	228 (89.4%)	444 (87.1%)
No	39 (15.3%)	27 (10.6%)	66 (12.9%)
Socioeconomic Status			
2	21 (8.2%)	11 (4.3%)	32 (6.3%)
3	37 (14.5%)	47 (18.4%)	84 (16.5%)
4	38 (14.9%)	55 (21.6%)	93 (18.2%)
5	88 (34.5%)	73 (28.6%)	161 (31.6%)
6	65 (25.5%)	25 (9.8%)	90 (17.6%)
Missing	6 (2.4%)	44 (17.3%)	50 (9.8%)
Age of beginning of use			
-	0 (0%)	1 (0.4%)	1 (0.2%)
1	7 (2.7%)	18 (7.1%)	25 (4.9%)
2	49 (19.2%)	4 (1.6%)	53 (10.4%)
3	23 (9.0%)	13 (5.1%)	36 (7.1%)
4	47 (18.4%)	13 (5.1%)	60 (11.8%)
5	48 (18.8%)	18 (7.1%)	66 (12.9%)
6	36 (14.1%)	36 (14.1%)	72 (14.1%)
7	18 (7.1%)	34 (13.3%)	52 (10.2%)
8	8 (3.1%)	28 (11.0%)	36 (7.1%)
9	2 (0.8%)	11 (4.3%)	13 (2.5%)
10	0 (0%)	12 (4.7%)	12 (2.4%)
11	0 (0%)	12 (4.7%)	12 (2.4%)
12	0 (0%)	5 (2.0%)	5 (1.0%)
13	0 (0%)	1 (0.4%)	1 (0.2%)
Missing	17 (6.7%)	49 (19.2%)	66 (12.9%)

tion time (105.4 and 201.7 minutes) (Table 2). 84% of respondents did not report sleep disturbance. However, in the group between 10 and 14 years, 19.6% presented daytime sleepiness and 52.5% difficulty waking up in the morning (Tables 3 and 4). The effective sleep time during weekdays was 9 and 8 hours in the first group and 10 and 11 in the second group, both groups with good sleep quality at 93.7% and 83.7%, respectively.

Regarding developmental disorders, more than 79% of the children thought they had normal language development at their age, and more than 89% deemed they had good school performance.

A high number of them had *enuresis* and *encopresis* (2.4% in the first group and 3.1% in the second one), *sudden anxiety* (9.8% and 42.4%), *emotional lability* (1.2% and 20.8%), *suicidal ideation* (1.6% and 11.4%), *anhedonia* (2.4% and 29.4%) and *irritability* (30.2% and 39.6%) (Table S1 and 3). Regarding conflict resolution and frustration, 62.7% and 42.7% cried in situations of frustration or stress. 18.4% and 41.6% had problems at the time of making decisions. 20.4% and 27.5% of the kids had problems waiting their turn. 29.8% and 45.5% got upset with sudden changes in plans. 23.5% and 44.3% got angry quickly. Regarding sociability, 9.4% and 19.6% did not play with their peers, 4.7% and 12.9% did not participate in group activities, and 7.4% and 5.4% did not report having close friends. The average number of people who qualified as friends was 5.7 and 13.1 (Table S1 and 3).

92% of the participants reported use of electronic devices at home. The most used was the cell phone, with 56.3% and 78.04% in each group, followed by the personal computer (PC) with the highest average time, 67.6 minutes for the first group (Table 4). In the group from 6 to 9 years old, the cell phone was used mainly to play games (57.3%), videos, and movies (45.5%). In the group from 10 to 14 years old, cell phone use focused on playing games (63.1%) and consulting social networks (60.8%). The PC was used mainly for tasks (72.9%) (Table S2).

Regarding the time of exposure to screens, it was documented that although there was control over the usage of electronic devices in their homes, more than 40% had a daily usage time longer than 90 minutes. When evaluating the time of use of these devices with each of the assessed variables, the daily time of exposure to screens for more than 90 minutes was more frequent in the group of 6 to 9-year-olds with a failure to approve the school year in about 3% of the kids; and in the group from 10 to 14-year-olds with a loss of a school subject in the last year in up to 25% of the students. Additionally, sleep problems appeared in 5% of children from 6 to 9 years of age and in 1.56% of those from 10 to 14 years of age. Likewise, the second group reported a higher percentage of close friends (74.5%). On

TABLE 2. Activities and recreational time

Recreational activities engaged in	6 to 9 years				10 to 14 years		
	Yes (%)	No (%)	Days a week	Daily average in minutes	Yes (%)	No (%)	Daily average in minutes
Sports	226 (88.6)	29 (11.3)	3.30 (1.63)	105.46 (74.95)	176 (69.0)	79 (30.9)	201.77 (190.53)
Reading	208 (81.6)	47 (18.4)	4.13 (1.98)	86.14 (173.85)	153 (60.0)	102 (40.0)	103.06 (122.36)
Drawing and/or coloring	199 (78.0)	56 (21.9)	3.95 (2.06)	99.48 (173.62)	138 (54.1)	117 (45.8)	116.16 (182.46)
Singing	124 (48.6)	131 (51.3)	3.25 (2.38)	79.32 (108.33)	88 (34.5)	167 (65.4)	128.10 (225.23)

TABLE 3. Characteristics of sleep. Development, behavior, mood, and sociability

Question.	10 to 14 years (n=255)		
	Yes (%)	No (%)	Missing
Do you have any problems at bedtime?	40 (15.7)	215 (84.3)	0.0*
Do you have difficulties waking up in the morning?	134 (52.5)	121 (47.4)	0.0*
Are you very sleepy during the day?	50 (19.6)	205 (80.3)	0.0*
Do you have trouble going back to sleep when you wake up?	86 (33.7)	169 (66.2)	0.0*
Do you consider your language to be normal for your age?	203 (79.6)	52 (20.3)	0.0*
Do you feel that learning is difficult for you?	29 (11.4)	226 (88.6)	0.0*
Do you think you have poor school performance?	27 (10.6)	228 (89.4)	0.0*
Do you wet the bed at night or defecate on your clothes?	8 (3.1)	247 (96.8)	0.0*
Have you run away from home?	23 (9.0)	232 (90.8)	0.0*
Do you usually take things without permission from home?	49 (19.2)	206 (80.7)	0.0*
Do you ever get nervous for no reason?	108 (42.4)	147 (57.6)	0.0*
Do you usually feel sad?	53 (20.8)	202 (79.2)	0.0*
Do you usually enjoy everyday activities?	203 (79.6)	52 (20.3)	0.0*
Do you feel like you have lost interest in general?	75 (29.4)	180 (70.5)	0.0*
Have you ever thought of ending your life?	29 (11.4)	226 (88.6)	0.0*
Do you have a bad temper?	101 (39.6)	154 (60.3)	0.0*
Do some things make you very angry?	194 (76.1)	61 (23.9)	0.0*
Do you find it difficult to make decisions?	106 (41.6)	149 (58.4)	0.0*
Do you usually cry when a stressful or frustrating situation occurs?	109 (42.7)	146 (57.2)	0.0*
Do you consider yourself to be a useful person?	211 (82.7)	44 (17.2)	0.0*
Do you have problems waiting for your turn?	70 (27.5)	185 (72.5)	0.0*
Do you get upset when there are sudden changes in plans?	116 (45.5)	139 (54.5)	0.0*
Do you get angry easily?	113 (44.3)	142 (55.6)	0.0*
When you get angry. Does your anger last long?	58 (22.7)	197 (77.2)	0.0*
Do you normally play with other children?	205 (80.4)	50 (19.6)	0.0*
Do you find it difficult to start conversations with people you barely know?	107 (42.0)	148 (58.0)	0.0*
Do you refuse to participate in group activities?	33 (12.9)	222 (87.0)	0.0*
Do you participate in groups or group activities?	213 (83.5)	42 (16.4)	0.0*
Do you have close friends?	241 (94.5)	14 (5.49)	0.0*

TABLE 4. Use of electronic devices at home

	6 to 9 years				10 to 14 years			
	Yes	No	Missing	Average usage in minutes	Yes	No	Missing	Average usage in minutes
Use any device	236 (92.55)	19 (7.45)	-	-	253 (99.2)	2 (0.7)	-	-
Cell phone	143 (56.3)	111 (43.70)	1	62.80 (123.89)	199 (78.04)	56 (21.96)	1	159.24 (195.46)
Tablet/ iPad	103 (40.71)	150 (59.29)	2	47.18 (82.34)	153 (60)	102 (40)	2	73.94 (186.03)
Personal computer	141 (55.73)	112 (44.27)	2	67.66 (104.70)	198 (77.95)	57 (22.35)	2	104.64 (126.80)
Video game console	59 (23.23)	195 (76.77)	1	23.47 (57.09)	122 (47.84)	133 (52.16)	1	49.61 (100.13)

TABLE 5. Daily exposure time to screens

	6 to 9 years n=255			10 to 14 years n=255		
	Over 90 minutes	Under 90 minutes	p-value	Over 90 minutes	Under 90 minutes	p-value
Sex (%)						
Female	59 (23.13)	105 (41.17)		120 (47.05)	29 (11.3)	
Male	57 (22.35)	34 (13.33)	<0.001	81 (31.7)	24 (9.4)	0.618
Missing	-	-		1 (0.39)	-	
Failed the school year/subjects (%)						
Yes	7 (2.74)	10 (3.92)		64 (25.0)	15 (5.8)	
No	109 (42.74)	128 (50.19)	0.611	138 (54.1)	38 (14.9)	0.59
Missing	-	1 (0.39)		-	-	
Devices control at home.						
Yes	102 (40)	134 (52.54)		161 (63.1)	44 (17.25)	
No	14 (5.49)	5 (1.96)	<0.001	41 (16.0)	9 (3.5)	0.72
Close friends.						
Yes	108 (42.35)	127 (49.80)		190 (74.5)	51 (20)	
No	8 (3.13)	11 (4.31)	0.487	12 (4.7)	2 (0.78)	0.78*
Missing	-	1 (0.39)		-	-	
Quality of sleep						
Good	103 (40.39)	136 (53.33)		171 (67.0)	39 (15.2)	
Moderate	13 (5.09)	3 (1.17)		24 (9.4)	12 (4.7)	
Bad	-	-	0.006	4 (1.56)	1 (0.39)	0.13
Missing	-	-		3 (1.17)	1 (0.39)	
Trouble falling asleep						
Yes	16 (6.27)	21 (8.23)		31 (12.1)	9 (3.5)	
No	100 (39.21)	118 (46.27)	0.90	171 (67.05)	44 (17.2)	0.93
Daytime sleepiness or tiredness						
Yes	5 (1.96)	5 (1.96)		41 (16.0)	9 (3.5)	
No	111 (43.52)	134 (52.54)	1.00	161 (63.1)	44 (17.2)	1.00
Sleep enough						
Yes	102 (40)	118 (46.27)		-	-	
No	13 (5.09)	21 (8.23)	0.48	-	-	
Missing	1 (0.39)	-		-	-	
Learning difficulties						
Yes	5 (1.96)	7 (2.74)		20 (7.8)	9 (3.5)	
No	111 (43.52)	132 (51.76)	1.00	182 (71.3)	44 (17.2)	0.22
Poor school performance						
Yes	5 (1.96)	5 (1.96)		21 (8.2)	6 (2.3)	
No	111 (43.52)	133 (52.15)	1.00	181 (70.9)	47 (18.4)	1.00
Missing	-	1 (0.39)		-	-	
Nervousness						
Yes	11 (4.31)	14 (5.49)		83 (32.5)	25 (9.8)	
No	105 (41.17)	124 (48.62)	1.00	119 (46.6)	28 (10.9)	0.52
Missing	-	1 (0.39)		-	-	
Suicidal ideation						
Yes	3 (1.17)	1 (0.39)		23 (9.01)	6 (2.3)	
No	113(44.31)	138 (54.11)	0.33*	179 (70.1)	47 (18.4)	1.00
Interest in things in general						
Yes	1 (0.39)	5 (1.96)		58 (22.7)	17 (6.66)	
No	114 (44.70)	134 (52.54)	0.22*	144 (56.4)	36 (14.1)	0.75
Missing	1 (0.39)	-		-	-	

TABLE 5. Continued

	6 to 9 years n=255			10 to 14 years n=255		
	Over 90 minutes	Under 90 minutes	p-value	Over 90 minutes	Under 90 minutes	p-value
Enjoyment of activities						
Yes	111 (43.52)	129 (50.58)	0.47	161 (63.1)	42 (16.4)	
No	5 (1.96)	10 (3.92)		41 (16.07)	11 (4.3)	
Bad temper						
Yes	40 (15.68)	37 (14.50)	0.22	83 (32.5)	18 (7.05)	0.43
No	76 (29.80)	102 (40)		119 (46.6)	35 (13.7)	
Stress crying						
Yes	75 (29.41)	85 (33.33)	0.65	85 (33.3)	24 (9.4)	0.79
No	41 (16.07)	54 (21.17)		117 (45.8)	29 (11.3)	
Difficulty making decisions						
Yes	23 (9.01)	24 (9.41)	0.71	81 (31.7)	25 (9.8)	0.43
No	93 (36.47)	115 (45.09)		121 (47.4)	28 (10.9)	
Difficulty waiting your turn						
Yes	23 (9.01)	29 (11.37)	0.96	54 (21.1)	16 (6.2)	0.74
No	93 (36.47)	110 (43.13)		148 (58.0)	37 (14.5)	
Alteration of behavior with changes in plans						
Yes	34 (13.33)	42 (16.47)	0.98	94 (36.8)	22 (8.6)	0.61
No	82 (32.15)	97 (38.03)		108 (42.3)	31 (12.1)	
Difficulty socializing with other children						
Yes	14 (5.49)	10 (3.92)	0.26	162 (63.5)	43 (16.8)	1.00
No	102 (40)	129 (50.58)		40 (15.6)	10 (3.9)	
Difficulty starting conversations						
Yes	26 (10.19)	46 (18.03)	0.081	79 (30.9)	28 (10.9)	0.09
No	90 (35.29)	93 (36.47)		123 (48.2)	25 (9.8)	
Not Participating in Group Activities						
Yes	6 (2.35)	6 (2.35)	0.98	24 (9.4)	9 (3.5)	0.45
No	110 (43.13)	133 (52.15)		178 (69.8)	44 (17.2)	
Participation in group activities						
Yes	100(39.21)	121 (47.45)	0.99	173 (67.8)	40 (15.6)	0.11
No	16 (6.27)	18 (7.05)		29 (11.3)	13 (5.09)	

the contrary, with the use of devices for less than 90 minutes, the group of 6 to 9-year-olds reported the highest percentage of close friends (49.8%), and both groups had fewer suicidal ideas (0.39% and 2.3%) (Table 5).

A bivariate analysis was performed on a total sample of 510 participants. The relation between exposure time higher than 90 minutes per week or weekend was cross-tabulated with questions regarding feelings of sadness, suicidal thoughts, bad temper, stress, difficulties waiting in turn, anger with the change of plans, anger easily, and difficulties in starting a conversation. This table is part of the supplementary material.

DISCUSSION

The prevalence of electronic devices among children has risen due to early exposure to ICTs. (2, 4, 10). By 2019, 98% of

people between the ages of 5 and 15 used some electronic device (11). Of all the devices they used, the smartphone has the highest increase from 15% in 2018 to 27% in 2019, with adolescents reporting the highest use (36%) (11). In the sample analyzed, the onset ages were 4 and 6. However, nowadays, the time children start using cell phones reported in the literature is 12 months of age (2, 4, 10), and evidence has emerged that the start of interaction with them occurs as early as three months of age (12).

In a 2011 US survey, smartphones and tablets were the most employed devices at 51% and 44%, respectively, with children using them daily for about 1 hour (13). Findings related to this study show that the PC had the highest average usage time in minutes in the first group (67 minutes) and the mobile phone in the second group (160 minutes).

When analyzing the usage patterns of various devices among the children, it was observed that over 57% of the

subjects primarily used cell phones for recreational activities. Additionally, 45% of them utilized it for viewing videos and movies, whereas roughly 60% of children engaged in social networking activities. These findings align with existing literature, which reported 56% of children using the internet for recreational purposes and 75% engaging in social media and similar activities. (2). Conversely, according to Osman et al., the most frequent activity on mobile devices (70%) was viewing videos (14).

This study examined two age groups regarding language disorders, learning difficulties, and poor school performance. The results showed that in both groups, less than 15% had learning problems compared to other children of the same age. Additionally, only 4% and 10% in each group felt they had poor school performance. However, there is a lack of evidence in the current literature regarding these developmental disorders. Most published studies focus on the impact of devices on children under two years of age, which can negatively affect cognitive development, particularly in language and executive function (15). Other studies have shown that watching educational programs at preschool age can provide better academic performance in adolescence (6, 15).

As per the recommendations set by the American Society of Pediatrics (AAP) in 2012 (16), for children up to 15 years of age, the maximum recommended screen time is 1.5 hours. This limit has been set to ensure that children's sociability is not affected due to excessive exposure to screens (16). Research has shown that incorporating technological devices into one's daily life can positively impact socio-affective development by promoting social communication with peers (3, 17). The study findings contradict this work. The results show that the participants with the higher percentage of close friends in the 6 to 9 years group had exposure to devices for less than 90 minutes. In contrast, the second group had the highest rate of close friends (74%) reported having exposure for more than 90 minutes. One study reported that 10 to 14-year-olds who frequently use electronic devices interact more with more children than those who do not use electronic devices as much (18).

When evaluating the quality of sleep in relation to daily screen exposure time larger than 90 minutes, the findings of this study are not in sync with what appears in other studies. A 2016 systematic review of 67 studies evaluating screen time and sleep in school-age children and adolescents found that screen time was negatively associated with sleep health (19). Computer use was associated with sleep problems and video games in 83% and 57% of the studies, respectively (19). In this study, less than 5% of the respondents stated alterations in their sleep patterns. When evaluating adequate hours of sleep, evidence showed that

both groups complied with the recommendations of the National Sleep Foundation (NSF) (20) and the American Academy of Sleep Medicine (AASM) (21), which indicate that in children between 6 and 14 years old, sleep should be from 9 to 12 hours (22).

Concerning changes in behavior and mood related to time spent on screens, both groups reported fewer suicidal ideas with daily device use for less than 90 minutes (Table 5). These findings are similar to those in a 2018 United States study examining the associations between screen exposure time and psychological well-being (23). That study found that adolescents between 14 and 17 years of age who use screens daily for more than 7 hours are twice as likely to present a diagnosis of depression (RR 2.39 95% CI 1.54, 3.70), and anxiety (RR 2.26, CI 1.59, 3.22) than those with less than 1 hour of daily use (23). In this study, users who spent more than 7 hours a day on screens were significantly more likely to show poor emotional regulation (not likely to be calm, argued too much, and had difficulty getting along with others) and unable to finish tasks (23). Other studies report associations between the use of computers, video games, and television and psychological difficulties, including social anxiety, depression, and loneliness (23, 24). These studies also show that screen users of 7 or more hours a day had twice the risk of low well-being (lack of calm, not completing tasks, not curious, and more likely to be diagnosed with anxiety and depression) compared to users who used a screen for 1 hour or less per day (23, 24). They were also more likely to have been assessed by a mental health professional (RR 2.22, CI 1.62, 3.03) and to require drug treatment (RR 2.99, CI 1.94, 4.62) (23, 24). These findings concur with the results of the children surveyed, given that in both groups, the kids were exposed daily to electronic devices for over 90 minutes, and close to 30% cried in the face of a stressful or frustrating situation, and 36% became upset when facing sudden plan changes.

The latest recommendations from the American Society of Pediatrics (AAP) state no specific limit for screen time in children older than five years. Instead, they suggest that parents individualize the approach to screen use and use calculators to develop a plan based on the child's age, physical activity, and sleep needs (24). It is important to remember that the recommended duration of screen time is based mainly on expert advice and considers the type of use and content viewed. However, it is also important to note that excessive screen time can lead to decreased physical activity, play, exercise, and sports.

Lastly, this study's limitations were the parents' non-availability of time and the SARS-CoV-2 pandemic. Likewise, it is crucial to consider that having two age groups with a self-administered survey by children from 10 to 14 could create

problems when understanding some questions in the survey, generating confusion and some interpretation issues. Therefore, it is necessary to carry out prospective cohort studies and studies with a larger sample size to establish more evident associations.

CONCLUSION

The increasing use of electronic devices among children aged 6 to 14 significantly impacts their family, school, and social environment. However, this influence will vary depending on the characteristics of their use, caregiver supervision, and their purpose. Although this study was not intended to provide strict correlations and needs to be understood as exploratory work, some coincidences were found that are worthy of note. It was found that children who used these devices for more than 90 minutes daily were also likelier to experience lower academic performance, socialization difficulties, and conflict resolution challenges. At the same time, those who used electronic devices for less than 90 minutes daily used to have fewer suicidal ideations.

The findings of this study highlight the need for careful consideration of electronic device usage in children. While devices can benefit, excessive use may negatively affect emotional responses, conflict resolution skills, and social interactions. Caregiver supervision promoting healthy device habits and ensuring a balanced approach to device usage may be crucial in mitigating potential adverse impacts and promoting healthy child development.

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SAŽETAK

Karakteristike uporabe elektroničkih uređaja u djece i adolescenata dobi 6-14 godina

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Uvod: Djeca i adolescenti svakodnevno koriste računala, mobitele i tablete, uz ostale elektroničke uređaje, u neakademskim aktivnostima. Bitno je karakterizirati utjecaj ovih uređaja na procese socijalizacije, interakcije i učenja u ovom segmentu populacije, a također je potrebno istražiti moguće štetne učinke povezane s njihovom uporabom. Cilj je bio opisati kako se ti uređaji koriste i njihov utjecaj na školski uspjeh, ponašanje i tjelesnu aktivnost djece i adolescenata od 6 do 14 godina.

Materijali i metode: Ovo je presječna analitička studija 510 školske djece u dobi od 6 do 9 i od 10 do 14 godina iz Bogote i Cundinamarca, Kolumbija. Ispitani su pomoću ankete od 38 pitanja koja su karakterizirala korištenje uređaja i simptome anksioznosti i depresije, rješavanje sukoba, spavanje i školski uspjeh.

Rezultati: Prosječna dob za početak korištenja uređaja bila je četiri godine. U obje skupine najviše su korišteni mobiteli (56,3% i 78,04%). Roditelji prate korištenje uređaja u 80% slučajeva. U 40% slučajeva upotreba uređaja bila je duža od 90 minuta dnevno. Oko 16% je također prijavilo poremećaje spavanja, frustraciju (48%), emocionalnu labilnost (20%) i suicidalne ideje (11%). 19% se nije igralo sa svojim vršnjacima, a 7% je izjavilo da nema bliske prijatelje.

Zaključci: Ova studija pokazuje visoku izloženost elektroničkim uređajima od rane dobi i njihovu povezanost s čimbenicima ponašanja. Buduće studije trebale bi dublje istražiti odnos između ovih čimbenika i elektroničkih uređaja.

Ključne riječi: MOBILNI UREĐAJI; DIJETE; ADOLESCENT; VRIJEME PRED EKRAKOM; AKADEMSKI USPJEH

Utility of camp for children with epilepsy: a retrospective

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Objective: The aim of this study was to evaluate the benefits of educational and recreational camping programs for children with epilepsy.

Method: A retrospective review of data collected from all children attending annual epilepsy camps organized by the Croatian Epilepsy Association and the Zagreb City Office for Health during 8 years was performed. Children included were between 6 and 18 years of age. The staff of the camp includes child neurologists, a psychologist, neurology nurses and trained volunteers. Educational activities are designed to improve children's knowledge of epilepsy, importance of taking medication, academic choices, suggested employment, and regulations regarding driving laws. These issues were discussed in groups or in single sessions, depending on the case. Other activities included supervised swimming, team sports, fun activities and games, arts and crafts and entertainment such as disco or movie night.

Each of the participants filled out three questionnaires 1. General data questionnaire and pre-camp knowledge test; 2. Camp satisfaction questionnaire and post-camp knowledge test; 3. Questionnaire on adaptation to epilepsy in young people.

Results: The analyses of surveys and tests showed that only 75% of children in camp knew that they had epilepsy. In 10% of children, friends and distant family members did not know about epilepsy. Comparing the knowledge test before and after the camp, the average percentage of correctly solved tasks on the first test is 65%, and on the second 87%. The answers in the questionnaire on adaptation to life with epilepsy are indicators of strong stigma in children with epilepsy.

Conclusions: The main accomplishment of the camp was for children to gain confidence that they can reach their full potential in life and to feel equal to their peers in every aspect of life.

Key words: EPILEPSY; QUALITY OF LIFE; ADAPTIVE BEHAVIOUR; RECREATION THERAPY

BACKGROUND

Epilepsy has a prevalent occurrence in childhood, since 60% of all patients suffering from epilepsy are children under the age of 16 (1, 2). Children with epilepsy are exposed to many stressors, including limitations in daily functioning, demanding treatments, frequent hospitalizations, isolation and a lack of age-appropriate activities. They also have the duties and obligations in the process of growing up: school obligations, development of independence, creation of an identity and establishment of adequate relationships with peers. These problems significantly increase the likelihood of developing psychological problems, such as depression,

anxiety, psychosis, attention and behavioural problems, as a result of psychosocial and clinical factors, and the development of stigma, that may affect the psychological adaptation to the disease and the course and outcome of the treatment. Several studies have shown that education and support groups create positive attitudes to successfully

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adapt to the disease and reduce anxiety and depression (3). In addition, educational and rehabilitation camps for children and adolescents suffering from chronic diseases are organized around the world and have proven to be extremely beneficial for the children and their caregivers (4).

Although many children with well-controlled epilepsy live normal lives but the longevity of the disease can lead to impaired quality of life (5). The psychosocial problems manifests in many ways. In such children, the first things that come to the fore are reduced learning difficulties, activities in everyday life, daily skills and personal independence. Difficulties in communication lead to behavioral disorders, all of which can lead to social isolation, anxiety, and depression (6).

The primary purpose of organizing camps for chronically ill children is to provide psychosocial support necessary for good adaptation to the disease. Research in the field of health psychology shows that social adaptation is one of the most sensitive areas in the growing age and that relationships with peers have a significant impact on adaptation to the disease (7).

The camp is an ideal place for a safe environment to meet peers who are living with the same illness, to exchange experiences, to re-evaluate treatment options, strengthen their confidence, and help develop habits that are useful even after they return home. For some children this may also be the first time to spend time without parental supervision. It might be their first chance to take care of themselves and get involved in joint work of all camp attendees on demystification of epilepsy and its stigma. The camp also enables the detection of children prone to risky behaviour and problems that require greater attention or intervention (8, 9).

METHODS

General design and patient population

A retrospective review of the data collected from all children who attended epilepsy camps during 8 years was performed. The education and rehabilitation camps, organized by the Croatian Association for Epilepsy, the Department of Paediatric Neurology, the Paediatric Clinic, the Zagreb UHC and the Sestre milosrdnice UHC with the sponsorship of the City Office for Health of the City of Zagreb designed to promote socialization and raise independence in children aged 6 through 18 with epilepsy. Children had 24 hour a day supervision by several child neurologists, a clinical psychologist, two nurses and two animators. (4, 9)

The program of the camp included educational, entertainment and sports activities aimed at improving the mutual acquaintance of peers with the same illness, acquiring new

knowledge of the disease, and improving psychological adaptation to the disease (4, 9).

Over the next years, the camp was held at different locations – from the seaside to the mountains, thus offering children various activities and experiences.

Participants were eligible for recruitment in camp if they were aged 6 years to 18 years, had a well control of epilepsy (in whom seizures are well controlled by their antiseizure medication and had less than one seizure per month) and regularly took one or more antiseizures medications. Patients were selected by a competent child neurologist with caregiver's consent. Caregivers signed an informed consent for the children to go and take the tests.

Camp activities and questionnaires

Educational activities (approximately 3h/day) are designed to improve children's knowledge of epilepsy, importance of taking medication, nutrition, academic choices, employment decisions and driving regulations. These issues were discussed in groups or in one-by-one sessions. Activities included indoor or outdoor supervised swimming, team sports (including tae-kwon do practice), age appropriate outdoor fun activities and games, arts and crafts and entertainment such as disco and movie night.

Clinical psychologists with the help of a neuropsychiatrist, who are members of the professional education team, created questionnaires and tests who filled out by camp attendees every year at the beginning and at the end of the camp. All materials were reviewed and approved by external experts (clinical psychologist). Each of the participants filled out three questionnaires: 1) General data questionnaire and pre-camp knowledge test; Supplementary Material 1; 2) Camp satisfaction questionnaire and post-camp knowledge test; Supplementary Material 2; 3) Questionnaire on adaptation to epilepsy in young people. Supplementary Material 3.

On the first day of the camp attendees took the General data questionnaire and pre-camp knowledge test; questionnaire including basic information (name, date of birth, grade in school), information about attendance of such camp (whether they attended it before) and information about the duration of the disease. Further 23 questions were multiple choice or fill in the blanks regarding epilepsy with a possibility to add some personal suggestions at the end.

On the last day of the camp attendees took the Camp satisfaction questionnaire and post-camp knowledge test. This test included basic information about the camp's advisor (surname, name) followed by 23 multiple choice or fill in the blanks questions with a possibility for a descriptive opinion

SUPPLEMENTARY MATERIAL 1



Croatian Association for Epilepsy



Klinika za pedijatriju
Od 1904.

KBC Sestre milosrdnice Zagreb
Pediatric Clinic

Educational and Rehabilitation Camp
General data questionnaire and knowledge test

Name and surname Date of birth Gender Age
Class I am in camp 1st time 2nd time 3rd time
My illness is, and has lasted since my years

General information

1. I take my therapy regularly YES Sometimes I forget I don't need therapy anymore
2. There was a period when I should not have taken medication YES NO
3. I have spent my summer without parents YES NO
4. In my school, my illness is known to: a) the class teacher, b) some students, c) no one, d) everyone
5. I had a seizure at school YES NO
6. Holidays with epilepsy worry me a) lot, b) medium, c) little

Knowledge test

1. Epilepsy is a contagious disease YES NO
2. What does the word epilepsy mean
3. I can decide for myself when I will take medication and when I will not YES NO
4. What is an aura
5. I would be better off not taking medication at all YES NO
6. Due to epilepsy we are not allowed to play video games YES NO
7. Because of medication, I concentrate less at school YES NO
8. Because of my illness, I can't do as much as my peers can
give an example of what you can't
9. What is a grand mal?
10. Working at a computer can trigger a seizure YES NO
11. A person with epilepsy can take sports such as peers without epilepsy with medication and control: YES NO
12. What is absence?
13. A person with epilepsy must take an antiepileptic for life: YES NO
14. Because of epilepsy you should not dive YES NO
15. Is there a law on driving a person with epilepsy YES NO
16. A person with epilepsy can choose the education / job they want YES NO
17. A person with epilepsy can get married and have children: YES NO
18. I can work at a computer:
19. I can swim and dive if
20. A person with epilepsy with medication and control can live like a peer without epilepsy: YES NO
21. A person with epilepsy can choose education / job according to ability and interest: YES NO

I want to add something:

.....

.....

.....

.....

SUPPLEMENTARY MATERIAL 2



Croatian Association for Epilepsy



Klinika za pedijatriju
Od 1904.

KBC Sestre milosrdnice Zagreb
Pediatric Clinic

Educational and Rehabilitation Camp

Questionnaire on satisfaction with the camp and test of knowledge after the camp

Name and surname

- 1. I am glad that I spent 7 days at sea: YES NO
- 2. My favorite work was:
- 3. It was hard for me
- 4. I had seizures YES NO
- 5. I had problems with
- 6. The food was
- 7. I heard from my parents a) too much, b) a lot, c) medium, d) little, e) too little
- 8. Staying in the camp has benefited me – circle the letter next to what applies to you
a) to meet new friends, b) to recreate sports,
c) to see how others are with the same disease, d) to have a good time,
e) to learn something new about the disease, f) to take a break from school
- 9. I got along with the staff a) very well, b) medium, c) poorly
- 10. Now I am worried about holidays with epilepsy a) more, b) the same, c) less
- 11. Now that I know more young people with epilepsy
- 12. I learned something new about epilepsy: YES NO
- 13. I want to go to Camp again next year: YES NO
- 14. Now I know better how to behave and live with epilepsy: YES NO

My opinion about the Camp in a few words:
.....
.....
.....

Knowledge test (after the camp)

- 1. Epilepsy is a contagious disease YES NO
- 2. What does the word epilepsy mean
- 3. I can decide for myself when I will take medication and when I will not YES NO
- 4. What is an aura
- 5. I would be better off not taking medication at all YES NO
- 6. Due to epilepsy we are not allowed to play video games YES NO
- 7. Because of medication, I concentrate less at school YES NO
- 8. Because of my illness, I can't do as much as my peers can
give an example of what you can't
- 9. What is a grand mal?
- 10. Working at a computer can trigger a seizure YES NO
- 11. A person with epilepsy can take sports such as peers without epilepsy with medication and control: YES NO
- 12. What is absence?
- 13. A person with epilepsy must take an antiepileptic for life: YES NO
- 14. Because of epilepsy you should not dive YES NO
- 15. Is there a law on driving a person with epilepsy: YES NO
- 16. A person with epilepsy can choose the education / job they want YES NO
- 17. A person with epilepsy can get married and have children: YES NO
- 18. I can work at a computer:

SUPPLEMENTARY MATERIAL 3

Name and surname: _____ Age: _____ Gender: M / F (circle)

How long have you had epilepsy? _____

INSTRUCTIONS: This questionnaire contains 20 statements to assess your attitude towards epilepsy and its impact on your life. There are no "right" or "wrong" answers, because everyone has the right to their own opinion. It would be good not to dwell too long on a particular issue.

For each statement, circle the answer that indicates the extent to which you agree or disagree with the statement.

1. If I didn't have epilepsy I would be a different person	Not true at all	Not true	I don't know	True	Exactly true
2. I don't like it when people say I have epilepsy	Not true at all	Not true	I don't know	True	Exactly true
3. Epilepsy is the worst thing that has happened to me in my life	Not true at all	Not true	I don't know	True	Exactly true
4. Most people would find it difficult to adjust to having epilepsy	Not true at all	Not true	I don't know	True	Exactly true
5. I am often embarrassed because I have epilepsy	Not true at all	Not true	I don't know	True	Exactly true
6. There is not much I can do to control epilepsy	Not true at all	Not true	I don't know	True	Exactly true
7. With epilepsy, one cannot have a normal life	Not true at all	Not true	I don't know	True	Exactly true
8. Medications for epilepsy are harmful	Not at all true	Not true	I don't know	True	Exactly true
9. I try not to let others know that I have epilepsy	Not true at all	Not true	I don't know	True	Exactly true
10. When someone is told they have epilepsy, it's like being sentenced to an illness for the rest of their lives	Not true at all	Not true	I don't know	True	Exactly true
11. Epilepsy has ruined my social life	Not true at all	Not true	I don't know	True	Exactly true
12. Because of epilepsy, some do not want to hang out (play) with me	Not true at all	Not true	I don't know	True	Exactly true
13. People don't understand what it's like to have epilepsy	Not true at all	Not true	I don't know	True	Exactly true
14. Perennial epilepsy changes a person	Not true at all	Not true	I don't know	True	Exactly true
15. Epilepsy is a serious and dangerous disease	Not true at all	Not true	I don't know	True	Exactly true
16. Epilepsy is a big problem even if you don't have seizures	Not true at all	Not true	I don't know	True	Exactly true
17. When you have epilepsy, there is nothing you can do to make it better	Not true at all	Not true	I don't know	True	Exactly true
18. There is no one with whom I can talk openly about epilepsy	Not true at all	Not true	I don't know	True	Exactly true
19. With epilepsy, everything can be done as when you are healthy	Not true at all	Not true	I don't know	True	Exactly true
20. I often think how unfair it is for me to have epilepsy while others are so healthy	Not true at all	Not true	I don't know	True	Exactly true

about the camp for each attendees. The questionnaire consists of 20 Likert-type statements, to assess attitudes about epilepsy and its impact on respondents' lives.

All of the attendees also filled the Questionnaire on adaptation to epilepsy in young that consists of 20 statements to

assess the state of their illness and its impact on the quality of life. This questionnaire was answered during a psychological workshop in the camp. The task of the attendees was to assess, on a scale of 5 degrees, to what extent they agree with the statement. The questionnaire was designed for the

TABLE 1. Results of Adaptation to Life with Epilepsy Questionnaire

	Not at all N (%)	Not true N (%)	Do not know N (%)	True N (%)	It's entirely true N (%)
If I had no epilepsy, I would be a different person.	10,5	21,1	39,5	26,3	2,6
I do not like when it is said that I have epilepsy.	10,5	23,7	5,3	50	10,5
Epilepsy is the worst thing in my life.	28,9	31,6	15,8	18,4	5,3
Most people would find it difficult to adjust to epilepsy.	/	18,4	55,3	21,1	5,3
I'm often uncomfortable because I have epilepsy.	18,4	31,6	2,6	39,5	7,9
I do not want others to find out that I have epilepsy.	5,3	55,3	2,6	36,8	/
When someone says that he has epilepsy, as if he is condemned to illness for the rest of his life.	39,5	47,7	5,3	7,9	/
People do not understand how it is to have epilepsy.	/	23,7	26,3	36,8	13,2
There is no one with whom you can talk openly about epilepsy.	47,4	47,4	2,6	2,6	/
I often think it is unjust to have epilepsy while others are so healthy.	10,5	23,7	5,3	50	10,5
Epilepsy spoiled my social life.	23,7	34,2	10,5	21,1	10,5
Because of epilepsy some do not want to play with me.	23,7	18,4	7,9	39,5	10,5
There is not much I can do to control epilepsy.	5,3	39,5	15,8	31,6	7,9
With epilepsy I cannot have normal life.	34,2	23,7	13,2	23,7	5,3
Epilepsy drugs are harmful.	15,8	13,2	55,3	15,8	/
Long-term duration of epilepsy change personality of a person.	/	7,9	42,1	39,5	10,5
Epilepsy is a serious and dangerous disease.	10,5	55,3	31,6	2,6	/
Epilepsy is quite a big problem even if you do not have seizures.	5,3	13,2	13,2	65,8	2,6
When you have epilepsy you cannot do anything to make it better.	10,5	55,3	23,7	10,5	/
With epilepsy everything can work as if you are healthy.	5,3	21,1	26,3	36,8	10,5

purpose of research in order to improve the quality of life and their skills in the areas of social interaction.

Statistical analysis

Gathered data was processed using the SPSS 16.0 statistical package. Qualitative data are presented in absolute and relative frequencies (N, %). Descriptive statistics of each individual variable were prepared. The pattern was divided into samples according to the research question being examined. Since these were categorical variables, a t-test on the independence of features in the contingency table was used, which checks the statistical significance of the difference in the frequency of certain answers to a particular question. The results of the quantitative data analysis were interpreted with at least a 5% level of significance.

RESULTS

The median age of children in the camp was 13 years and 9 months (range 6 years to 18 years). There were more female 103,5 (64.7 %) than male 56,5 (35.3%) for 8 years. Every year there were 8,2 (41.2%) of new attendees in the camp and 11,8 (58.8%) of attendees who have participated in the camp two or more times. The median duration since epi-

lepsy onset was from 1 year to 14 years (median 6.93 years). Regarding descriptive data, 76,5% of children knew that they had epilepsy. In 10% of children, friends and distant family members did not know about the epilepsy diagnosis. Before establishing good control of epilepsy, 42.1% of children had a convulsive seizure at school and 57.9% had no seizure at school. During the camp only 7.9% had epileptic seizure. More than half of the participants (55.3%) had previously been on holidays without parents.

Analysing the results of the pre-camp and post-camp knowledge test about epilepsy that was given at the beginning of the camp and after the education was completed, the average percentage of correctly solved questions rose from 65% to 87% after education (t = -6.981, p <0.01). Children who participated in the camp two times were also involved in solving both epilepsy knowledge tests.

The results of Questionnaire on adaptation to epilepsy in young people is showed in Table 1. The following results can be extracted from the table: the statement 1; "If I didn't have epilepsy, I would be a different person" the largest number of respondents, 39.5% answered that they "don't know". The statement "I don't like it when people say I have epilepsy" is true by 50% of respondents, while 10.5% of them think the statement is completely true. In claim 4; the

largest number of respondents 55.3% answered that they do not know the answer; "It would be difficult for most people to adjust to having epilepsy." To statement 10 "I often think how unfair it is for me to have epilepsy while others are so healthy", 50.0% answered that it was "true", and statement 12; "Because of epilepsy, some do not want to hang out (play) with me", the largest number of respondents 39.5% believe correct. Claim 15 "Epilepsy drugs are harmful", 55.3% of respondents do not know the answer. The largest number of respondents 65.8% answered "correctly" to statement 18 "Epilepsy is a big problem even if you do not have seizures", while 55.3% answered "is not true" to the statement "When you have epilepsy there is nothing you can do to get better". Finally, 36.8% and 10.5% of respondents consider the statement "With epilepsy, you can do everything as if you are healthy" correct and completely correct.

DISCUSSION

To our knowledge, this is the first study to show the results of the level of knowledge about epilepsy as a disease in children and how epileptic camps affect the daily lives of children with epilepsy. In our camp did the children fill in the epilepsy pre- and post- knowledge test, as well as the evaluation of the success of the educational-rehabilitation camp at the end. The average percentage of correctly solved tasks in the first test was 65%, and in the latter 87%. The analyses of surveys and tests showed that only 75% of children in camp knew that they had epilepsy. In 10% of children, friends and distant family members did not know about epilepsy. The answers in the questionnaire on adaptation to life with epilepsy are indicators of strong stigma in children with epilepsy. Each year at least one child had a seizure during the camp. Since we did not find that other or similar epilepsy questionnaires were filled out in other camps, we could not compare this data.

Epilepsy camp is a place for fun as well as a place where children attending the camp get the knowledge about epilepsy and feel supported (11). Educational and rehabilitation camps for children with chronic illnesses have been organized in Zagreb for many years, while the project "Improving the life of children and adolescents suffering from epilepsy" including an educational and rehabilitation camp for children with epilepsy started for the first time in 2010, with only one camp per year, under the auspices of the City Health Office of the City of Zagreb. This educational and recreational camp for children with epilepsy has been organized during summer or winter holidays. In the world, camps for children with epilepsy and other chronic illnesses are also organized during holidays. The first organized camp for children with chronic illnesses including epilepsy was in

the summer of 1998 at the Covenant Heights National Park, Estes Park, Colorado (12). In addition to this camp, there are many summer camps for children with epilepsy in the United States and Canada. (13, 14, 15, 16).

Gender and age of participants in Croatian epilepsy camp were similar in all years. The children in the camp were between 6 and 18 years old, matching the data of other camps in the world (14). In our camp, as well as in the mentioned camps of children with epilepsy in the United States, parents were not present (13).

It was particularly important for us to see that our camp has an educative character as it was intended as an educational rehabilitation camp, which means that there were education workshops on epilepsy and life with epilepsy (4 workshops with a child neurologist and 4 workshops with a clinical psychologist).

Searching the published literature, we did not find similar educational epilepsy camps for children offering better understanding of the disease and also targeted to fight the stigma with structured activities helping children to understand that they are not alone with their problems and that they can live a life as their healthy peers.

We did not compare the differences of the social interactions (11) for every year as *Cushner-Weinstein* et al. did in their study where they compared 3 years and results showed significant improvement in all examined segments (social interaction, active participation, responsibility and communication) in the year 3 (12). We showed differences in the knowledge between the first day and the last day of stay in the camp. According to the answers to the questionnaire on epilepsy life adaptation, it is also seen that the stigma is very pronounced in children with epilepsy: On one of the claims – I do not like when I'm told that I have epilepsy, 60.5% of respondents agree that the statement is true. Also 47.4% feel discomfort because they have epilepsy. Half of the respondents think it is unfair to have epilepsy while others are so healthy. In the literature, we could not find similar data about adaptation to life with epilepsy to compare with our data even though we think this would be important because it could contribute to a better understanding of life with epilepsy (20).

These data encouraged us to establish the Committee for Preservation and Improvement of Quality of Life of People with Epilepsy and based on it, continuous education on epilepsy for all kindergarten, elementary and high school teachers of the City of Zagreb was established within the City Health Office, and was conducted during 2015/16. According to the searched literature, no identical data were found on teacher education in other countries. The same results are if you compare to the other disease (21, 22).

When observing the results, it should be taken into account that the research was conducted on an appropriate sample and as such a sample of respondents cannot be considered representative, given that 5.5% of children under 18 in Croatia have active epilepsy (23). It is important to mention the limitations of some of the questions, given the large age range in children of camp participants who ranged from 8 to 18. Older respondents have more knowledge and experience about their disease, seizures and treatment than younger children. The limitation of the research is limited by the inclusion of a larger number of children in the camp of children with epilepsy and accompanying medical staff, and the number of both depends on the financial resources received.

CONCLUSION

The results show that the camp for children with epilepsy can improve knowledge, socialization and communication among children with epilepsy.

The main message of the camp was for children to be confident that they can reach their full potential in life and to feel equal to their peers in every aspect of life. All children were continuously encouraged to improve their knowledge of epilepsy and associated lifestyle modifications to ensure good health. A specific camp designed for children with epilepsy can improve adaptive behaviours and social interactions. Participants enjoyed the experience and received education in a supportive environment.

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SAŽETAK

Korisnost kampa za djecu s epilepsijom: retrospektiva

Monika Kukuruzović, Ljerka Cvitanović-Šojat, Branka Divčić, Maja Batista, Kristina Kužnik, Iva Šeparović, Maša Malenica

Cilj: Cilj ovog istraživanja bio je procijeniti dobrobiti obrazovnih i rekreacijskih programa kampiranja za djecu s epilepsijom.

Metoda: Proveden je retrospektivni pregled podataka prikupljenih od sve djece koja su pohađala godišnje kampove za epilepsiju u organizaciji Hrvatske udruge za epilepsiju i Gradskog ureda za zdravstvo Grada Zagreba tijekom 8 godina. Uključena su djeca u dobi od 6 do 18 godina. Osoblje kampa uključuje dječje neurologe, psihologe, neurološke medicinske sestre i educirane volontere. Edukativne aktivnosti osmišljene su kako bi poboljšale znanje djece o epilepsiji, važnosti uzimanja lijekova, akademskim izborima, predloženom zaposlenju i propisima koji se odnose na zakone o vožnji. O tim pitanjima raspravljalo se u skupinama ili u pojedinačnim sesijama, ovisno o slučaju. Ostale aktivnosti uključivale su plivanje pod nadzorom, timske sportove, zabavne aktivnosti i igre, umjetnost i rukotvorine te zabavu poput diska ili filmske večeri.

Svaki od sudionika ispunio je tri upitnika 1. Upitnik s općim podacima i provjeru znanja prije kampa; 2. Upitnik o zadovoljstvu kampom i provjera znanja nakon kampa; 3. Upitnik o prilagodbi na epilepsiju u mladima.

Rezultati: Analize anketa i testova pokazuju da je samo 75% djece u kampu znalo da boluje od epilepsije. U 10% djece prijatelji i dalji članovi obitelji nisu znali za epilepsiju. Uspoređujući provjeru znanja prije i nakon kampa, prosječan postotak točno riješenih zadataka na prvom testu je 65%, a na drugom 87%. Odgovori u upitniku o prilagodbi na život s epilepsijom pokazatelji su jake stigme kod djece s epilepsijom.

Zaključci: Glavno postignuće kampa bilo je da djeca steknu samopouzdanje da mogu ostvariti svoj puni potencijal u životu i da se osjećaju ravnopravno sa svojim vršnjacima u svakom aspektu života.

Ključne riječi: EPILEPSIJA; KVALITETA ŽIVOTA; ADAPTIVNO PONAŠANJE; REKREACIJSKA TERAPIJA

Učestalost odštetne odgovornosti kod povrede pravnog standarda dužne pažnje u pedijatriji kao zdravstvenoj djelatnosti

Dominik Vuletić*

Cilj: Fenomenologija pravne prakse globalno bilježi pojavu čitave industrije liječničke odgovornosti, odnosno parničenja. Posljedično zabilježen je trend porasta odštetno pravnih postupaka protiv pružatelja zdravstvenih usluga. Rizik od izloženosti odštetnim zahtjevima za liječnike u pedijatriji veći je nego u drugim područjima medicine pokazuju relevantna istraživanja.

Metode: Kako bi utvrdili da li se navedeni svjetski trend odrazio i u hrvatskoj pravnoj praksi, provedeno je istraživanje učestalosti pravomoćnih odluka o odštetnim zahtjevima zbog liječnike greške u razdoblju od 2019. do 2023. godine. Istraživanje je uzelo u obzir i referentnu točku najснаžnijeg korelacijskog čimbenika: nesavjesnog liječenja. Metodološki je pretražena sudska praksa domaćih sudova u navedenom razdoblju kroz bazu podataka lus info te je uzet broj odluka glede liječničke pogreške i nesavjesnog liječenja po godinama te su zatim rezultati suženi na pedijatrijske predmete, odnosno, one slučajeve gdje se odlučuje o postojanju liječničke pogreške pedijatra.

Rezultati: Ukupno je zabilježeno 54 odluka o postojanju odnosno nepostojanju liječničke pogreške u promatranom razdoblju, od čega je najveći broj (31.5%) zabilježen 2021. godine. Ukupan broj odluka o nesavjesnom liječenju je upola manji (N=26), pri čemu je najveća učestalost (27%) evidentirana u prvoj godini promatranog razdoblja. U cjelokupnom promatranom razdoblju samo jedna odluka se odnosi na pedijatrijski slučaj (N=1).

Zaključci: Rezultati ovog istraživanja pokazuju da u Hrvatskoj ne postoji signifikantno povećanje broja odštetnopravnih zahtjeva za neimovinsku štetu, odnosno povredu prava osobnosti uslijed liječničke pogreške u pedijatriji. Drugim riječima, trend u Republici Hrvatskoj ne prati trendove svjetske pravne prakse u tom području.

Ključne riječi: PRAVNI ASPEKTI; SUDSKE ODLUKE; DJECA; ZDRAVSTVENA DJELATNOST; PEDIJARIJA

UVOD

Glavni nositelji zdravstvene djelatnosti u Republici Hrvatskoj su zdravstvene ustanove, trgovačka društva i privatni zdravstveni radnici, sukladno pravnom okviru koji proizlazi iz Zakona o zdravstvenoj zaštiti (1). S obzirom na osnivača, zdravstvene ustanove mogu biti javne ili privatne. Navedena dihotomija nije nebitna za teorijsku pravno-ekonomsku konceptualizaciju zdravstvene djelatnosti. O kakvoj je djelatnosti riječ – javnoj ili gospodarskoj? Osim općeg teorijskog propitivanja treba posebno upozoriti da navedeno

hrvatsko uređenje gdje se i trgovačka društva javljaju kao nositelji zdravstvene djelatnosti. Trgovačka društva su, sukladno općem uređenju prava društva (2), *inter alia* pravne osobe ustrojene radi stjecanja dobiti (3). Pristup Zakona o zdravstvenoj zaštiti upućuje da je hrvatski zakonodavac ipak

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odlučio koncipirati zdravstvenu djelatnost, čini se, prvenstveno kao javnu djelatnost.

U svakoj djelatnosti može doći do nastanka štete prema korisnicima, što se odnosi i na zdravstvenu djelatnost. Odštetna odgovornost može biti izvanugovorna i ugovorna. Pružanje zdravstvene usluge njezinom korisniku je ujedno i obveznopravni odnos. Dužnost svih sudionika obveznih odnosa je da se u zasnivanju kao i u ostvarivanju prava i obveza iz tih odnosa pridržavaju načela savjesnosti i poštenja (4) te da u ispunjenju obveza postupaju s pažnjom koja se u pravnom prometu zahtjeva za odgovarajućoj vrstu odnosa. Kod pružanja zdravstvene usluge zdravstveni radnici moraju postupati s povećanom pažnjom, prema pravilima struke i običajima, stoga se na njih primjenjuje pravni standard dobrog stručnjaka. Naravno da se primjena pravila struke i običaja ocjenjuje konkretno s obzirom na okolnosti svakog slučaja te da različite kategorije zdravstvene djelatnosti kao i za različite nositelje zdravstvene djelatnosti postoje različita pravila i običaji predmetne struke.

Odštetna odgovornost za uzrokovanu štetu u zdravstvenoj djelatnosti prema korisnicima usluga tema je od interesa, kao u domaćoj pravnoj znanosti (5), tako i u međunarodnoj pravnoj literaturi (6).

U domaćem uređenju obveznih odnosa šteta se smatra umanjnjem nečije imovine (obična šteta), sprječavanje njezina povećanja (izmakla korist) i povreda prava osobnosti. Prema tome, štete možemo podijeliti na imovinske ili materijalne (obična šteta i izmakla korist), i neimovinske ili nematerijalne (povreda prava osobnosti). Novi Zakon o obveznim odnosima (7) iz 2005. godine uveo je objektivni koncept neimovinske štete sa pojmom povrede prava osobnosti. Prethodno uređenje našeg obveznog prava konceptualiziralo je neimovinsku štetu kao nanošenje drugome fizičkog ili psihičkog bola ili izazivanje straha (4). Pravo osobnosti obuhvaća (8) pravo na život, tjelesno i duševno zdravlje, ugled, čast, dostojanstvo, ime, privatnost osobnog i obiteljskog života, slobodu i dr. Unatoč tome što je uveden objektivni koncept neimovinske štete, nije dostatna bilo kakva povreda prava osobnosti da bi oštećeni ostvario pravo na odštetu odnosno pravičnu novčanu naknadu. Naime, sud će dosuditi pravičnu novčanu naknadu u slučaju povrede prava osobnosti samo ako nađe da težina povrede i okolnosti slučaja opravdavaju takvu naknadu. Dakle, ako govorimo o neimovinskoj šteti, sud u svakom pojedinom slučaju prvo treba utvrditi da li je štetna radnja dovela do povrede prava osobnosti, a zatim ocijeniti s obzirom na okolnosti da li je predmetna povreda takve težine da opravdava isplatu pravične novčane naknade. Pri toj ocjeni sud se svakako rukovodi jačinom i trajanjem povredom prava osobnosti uslijed štetnom radnjom izazvanih fizičkih i duševnih boli te straha.

Opće pretpostavke odgovornosti za štetu su postojanje subjekta uzročnika štete, štetna radnja, sama šteta, uzročnost između štetne radnje uzročnika štetnika i nastale štete te naposljetku protupravnost. Kod ugovorne odgovornosti za štetu posebne pretpostavke su sljedeće: postojanje valjanog ugovora (najčešće ugovora o zdravstvenoj usluzi), povreda ugovorne obveze, šteta nanescena korisniku zdravstvene usluge, postojanje uzročne veze između povrede ugovorne obveze i prouzročene štete te postojanje protupravnosti, odnosno, izostanak predviđenih okolnosti za oslobođenje dužnika od odgovornosti.

Kod štete nastale pružanjem zdravstvene usluge krivnja se pretpostavlja. Prema tome, u slučaju nastanka štete krivnja pružatelja zdravstvene usluge se pretpostavlja, odnosno, teret dokazivanja da nema krivnje (da se zaista postupalo prema standardu pažnje dobrog stručnjaka) je na nositeljima zdravstvene djelatnosti i na zdravstvenim radnicima, a ne na oštećenom. Međutim, u hrvatskoj sudskoj praksi unatoč slobodnoj ocjeni dokaza su ključna vještačenja medicinske struke o postojanju liječničke pogreške kao povrede dužnog standarda pažnje. Često se u postupcima izvodi i nad-vještačenje i treće vještačenje, a osobit problem su sukob interesa vještaka i profesionalna solidarnost liječničke struke.

Odgovara prvenstveno poslodavac zdravstvenog radnika. Naime, Zakon o obveznim odnosima izričito propisuje kako za štetu koju zaposlenik u radu ili u svezi s radom prouzroči trećoj osobi odgovara poslodavac kod kojeg je radnik radio u trenutku prouzročenja štete, osim ako se dokaže da su postojali razlozi koji isključuju odgovornost (čl. 1061 ZOO-a). Međutim, oštećeni ima pravo zahtijevati naknadu štete i neposredno od zdravstvenog radnika koji je štetu prouzročio namjerno. Ukoliko poslodavac samostalno nadoknadi štetu, ima pravo regresa prema zdravstvenom radniku koji je prouzročio štetu.

Klarić tipologizira četiri grupe (9) tipičnih štetnih radnji u obavljanju zdravstvene djelatnosti: povreda pravila zdravstvene struke odnosno liječnička pogreška; povreda prava na tjelesni integritet poput liječenja bez pristanka pacijenta; povreda obveze pružanje hitne medicinske pomoći i povreda obveze sklapanja ugovora o zdravstvenoj usluzi.

Fenomenologija pravne prakse globalno bilježi pojavu čitave industrije liječničke odgovornosti odnosno denucijacije //ili parničenja (10). Ovdje, dakle, govorimo o trendu porasta odštetno pravnih postupaka protiv pružatelja zdravstvenih usluga. S druge strane, u Sjedinjenim Američkim Državama (SAD) je prema nekoliko studija (11), koje nisu prošle bez kritika medicinske struke, utvrđeno kako bi se liječnička pogreška, kad bi se posebno kvalificirala kao zaseban uzrok, bila treći po redu uzročnik smrti u populaciji.

Prema jednoj indijskoj studiji najučestaliji su odštetni zahtjevi u kirurgiji sa stopom 27%, a najviše se odštete u apsolutnom novčanom iznosom dodjeljuje u pedijatriji (12). Druga studija iz SAD-a utvrđuje na temelju podatka izloženosti dječjih ortopeda u odnosu na ostale ortopedске uže specijalnosti sudskim postupcima (13). Navedena studija izvodi zaključak kako je inače rizik od izloženost za odštetne zahtjeve za liječnike u pedijatriji (odnosno u područjima medicine gdje se liječe djeca) veći nego u drugim područjima medicine.

Zadatak ovog istraživanja bio je istražiti da li se navedeni svjetski trend transplantirao u hrvatsku pravnu praksu, a odbrano je područje pedijatrije kao jedno od najviše incidentnih u inozemnoj literaturi.

METODE I ISPITANICI

Cilj istraživanja bio je utvrditi učestalost dosuđenih odštetnih zahtjeva u pedijatriji kao dijelu zdravstvene djelatnosti u odnosu na opisane svjetske trendove povećanja odštetno-pravnih zahtjeva, u razdoblju od 1. siječnja 2019. do 31. prosinca 2023. godine.

Pedijatrija je izabrana kao jedna od najizloženijih struka skladno ranije navedenim rezultatima inozemnih studija, a istraživana je liječnička pogreška kao najtipičniji oblik povrede dužnog standarda pažnje u obavljanju zdravstvene djelatnosti. Jedan od temeljnih problema koji se javlja kod provedbe ovakvog istraživanja hrvatske sudske prakse vezano uz zdravstvenu djelatnost općenito jest međudjelovanje odštetnopravne odgovornosti s postojanjem kaznenopravne odgovornosti gdje su liječnici i zdravstveni radnici jedini počinitelji, dakle, kao *delicta propria* (14). Postojanje odštetne odgovornosti bez kaznenopravne jest moguće, ali rijetko, unatoč objektivnoj konceptualizaciji povrede prava osobnosti kao izvorišta nastanka neimovinske štete. Povre-

de prava osobnosti uzrokovana obavljanjem zdravstvene djelatnosti može postojati i bez počinjenja kaznenog djela. Radi jasnoće treba istaći da ovdje govorimo o pravomoćno dosuđenim odštetnim zahtjevima, a ne broju pokrenutih postupaka za naknadu neimovinske štete. Broj pokrenutih postupka je viši od broja presuda kojim se pravomoćno dosuđuje naknada štete. Zato metodološki istraživanje prakse treba uzeti u obzir i kaznenopravne aspekte kao najutjecaj-niji korelacijskog čimbenik u određivanju odštetne odgovornosti. Uzeto je kazneno djelo nesavjesnog liječenja kao standardna poveznica kod međudjelovanja odštetne odgovornosti uslijed liječničke pogreške s kaznenopravnom odgovornosti. Ključni referenti pojmovi istraživanja su liječnička pogreška i nesavjesno liječenje.

Metodološki smo pretražili sudsku praksu domaćih sudova (županijski sudovi, Vrhovni sud) u navedenom referentnom razdoblju kroz bazu podataka lus info ograničivši se na pravomoćne odluke. Prvo je provedena pretraga odluke kojima se utvrđuje ili ne utvrđuje postojanje liječničke pogreške. Sljedeća pretraga se odnosila na utvrđenje postojanja počinjenja odnosno nepočinjena djela nesavjesnog liječenja. U trećem koraku su rezultati obje pretrage suženi na odluke gdje se kao oštećeni pojavljuju djeca odnosno maloljetnici u referentnom vremenskom intervalu.

REZULTATI

Prvi korak u pretrazi se odnosio na odluke u kojima se pravomoćno odlučuje o postojanju liječničke greške u tijeku referentnog razdoblja. Ukupno je zabilježeno 54 takve odluke u referentnom razdoblju, od čega je najveći broj (31.5%) zabilježen 2021. godine. Rezultati prvog koraka prikazani su u Tablici 1.

Drugi korak u pretrazi odnosio se na odluke u kojima se pravomoćno odlučuje o postojanju (odnosno o nepostojanju)

TABLICA 1. Odluke o postojanju liječničke pogreške u promatranom razdoblju

	2019 (N)	2020 (N)	2021 (N)	2022 (N)	2023 (N)	Ukupno po sudovima (N)
Županijski sudovi	4	4	7	5	11	31
Vrhovni sud	4	3	10	5	1	23
Ukupno po godinama	8	7	17	10	12	54

TABLICA 2. Odluke o nesavjesnom liječenju u promatranom razdoblju

	2019 (N)	2020 (N)	2021 (N)	2022 (N)	2023 (N)	Ukupno po sudovima (N)
Županijski sudovi	4	2	1	5	2	14
Vrhovni sud	3	2	3	1	3	12
Ukupno po godinama	7	4	4	6	5	26

nesavjesnog liječenja u tijeku referentnog razdoblja. Ukupno je zabilježeno 24 takve odluke u referentnom razdoblju, od čega je najveća učestalost (27%) evidentirana u 2019. god. kao prvoj godini referentnog razdoblja. U međudodnosu na rezultate prve pretrage treba zamijetiti da je broj odluka približno upola manji (N=26) kod nesavjesnog liječenja. Rezultati drugog koraka prikazani su u Tablici 2.

Treći korak u istraživanju bio je suziti rezultate obje pretrage na odluke gdje se kao oštećeni pojavljuju djeca odnosno maloljetnici u referentnom vremenskom intervalu. Rezultat trećeg koraka istraživanja jest postojanje samo jedne pravomoćne odluke (N=1). Odluka se podudarno odnosi i na postojanje liječničke greške i nesavjesnog liječenja. Riječ je o presudi Županijskog suda u Slavanskom Brodu iz 2020. godine (15) kojom se potvrđuje prvostupanjska presuda i odbijaju žalbe. Predmetnom presudom jedan liječnik je osuđen na kaznu zatvora u trajanju od jedne godine jer nije promijenio terapiju azitromicinom u penicilinski ili cefalosporinski antibiotik liječenom djetetu koje je imalo šarlah te je propustio indicirati hospitalizaciju. Posljedica takvog postupanja je bila nastup upale pluća i septičkog šoka te u konačnici smrtni ishod u liječenog djeteta. Pri donošenju odluke ključno je bilo vještačenje Odbora za sudbena mišljenja Medicinskog fakulteta koji je potvrdio da je takvo postupanje bilo u uzročno posljedičnoj vezi s smrtnim ishodom djeteta. Odštetnopravni zahtjev u predmetnom postupku nije postavljen, već će se o pravičnoj novčanoj naknadi zbog povrede prava osobnosti odlučiti u odvojenom parničnom postupku (gdje još nije donesena pravomoćna odluka) sukladno prevladavajućoj sudskoj praksi.

RASPRAVA I ZAKLJUČCI

Praksa je pokazala kako pravni institut odštetne odgovornosti za neimovinsku štetu odnosno povredu prava osobnosti nastalu uslijed pružanja zdravstvenih usluga, kako je razrađen u uvodnom dijelu ovog rada, u izravnoj međuovisnosti s drugim oblicima pravne odgovornosti. Prvenstveno je pritom riječ o kaznenopravnoj odgovornosti. Odštetnopravna odgovornost proizlazi iz istog činjeničnog supstrata kako i kaznenopravna makar najčešće u dva odvojena sudska postupka, parničnom i kaznenom. U svakom slučaju postojanje kaznenopravne odgovornosti uz samu neimovinsku štetu, odnosno povredu prava osobnosti dobar je indikator da će doći do uspjeha u odštetno pravnom zahtjevu. Odštetnopravni zahtjev može biti postavljen već i samom kaznenom postupku i o njemu kazneni sud može meritorno odlučiti, ali i ne mora. Treba napomenuti da je većina sudskih odluka u kojima se odlučuje o postojanju liječničke pogreške i pripadajućem odštetnopravnom zahtjevu, a gdje prethodno nije utvrđena kaznenopravna odgovornost pru-

žatelja zdravstvene usluge završava odbijanjem tužbenog zahtjeva. U praksi se pak najčešće parnični postupci pokreću usporedno s postojanjem kaznenog postupka.

Hrvatski Kazneni zakon (16) uređuje katalog kaznenih djela protiv zdravlja ljudi u svojoj Glavi XIX. U predmetni katalog ulaze sljedeća kaznena djela: širenje i prenošenje zarazne bolesti; nesavjesno liječenje; nedozvoljeno uzimanje i presađivanje dijelova ljudskog tijela; nepružanje medicinske pomoći u hitnim stanjima; nadriliječništvo; krivotvorenje lijekova ili medicinskih proizvoda; proizvodnja i stavljanje u promet štetnih proizvoda za liječenje; nesavjesno postupanje pri pripremanju i izdavanju lijekova; proizvodnja i stavljanje u promet proizvoda štetnih za ljudsko zdravlje; nesavjesni pregled mesa za prehranu; neovlaštena proizvodnja i prometa droga; omogućavanje trošenja droga te neovlaštena proizvodnja i promet tvari zabranjenih u sportu. Kazneni zakon propisuje specifične okolnosti kad je riječ o teškim kaznenim djelima protiv zdravlja ljudi kod sljedećih djela iz predmetnog kataloga: širenje i prenošenje zarazne bolesti, nepružanje medicinske pomoći u hitnim stanjima, proizvodnja i stavljanje u promet štetnih proizvoda za liječenje, nesavjesno postupanje pri pripremanju i izdavanju lijekova, proizvodnja i stavljanje u promet proizvoda štetnih za ljudsko zdravlje i nesavjesni pregled mesa za prehranu. Specifične okolnosti su koje uzrokuju kvalifikaciju kao teškog kaznenog djela su primjerice ako je uslijed počinjenja došlo do nanošenja teške tjelesne ozljede ili osobito teške tjelesne drugoj osobi, ili je postojeća bolest znatno pogoršana, ili je nastupio prekid trudnoće kod druge osobe, ili je prouzročena smrt jedne ili više osoba. Kad je riječ o pružanju zdravstvenih usluga, ovdje prvenstveno govorimo o kaznenim djelima nesavjesnog liječenja (čl. 181 KZ-a), nedozvoljenog uzimanja i presađivanja dijelova ljudskog tijela (čl. 182 KZ-a) te nepružanja medicinske pomoći u hitnim stanjima (čl. 183 KZ-a). U predmetnim djelima se kao počinitelji javljaju zdravstveni radnici. U užem smislu riječ je o medicinskom kaznenom pravu kao djelu kaznenog prava, a možemo kategorizirati navedene kaznenopravne aspekte i kao dio transdisciplinarnog područja pravne medicine odnosno medicinskog prava (17).

Podredno treba od odštetne odgovornosti razdijeliti i stepovnu (disciplinsku) odgovornost. Prekršajna odgovornost temeljem Zakona o zdravstvenoj zaštiti (NN) i drugih postoji pak kod zdravstvenih ustanova i trgovačkih društava koji se bave zdravstvenom djelatnošću kao i privatnih zdravstvenih radnika.

Dobiveni rezultati istraživanja ne ukazuju na postojanje izraženog trenda povećanja učestalosti pravomoćnih odluka u obje promatrane kategorije tijekom referentnog razdoblja. Međutim, dobiveni rezultati ipak ukazuju da postoji trend

porasta odluka vezanih uz samo postojanje liječničke pogreške u odnosu na broj odluka gdje se odlučuje o postojanju kaznenog djela nesavjesnog liječenja.

Potrebno je istaći kako dobiveni rezultati osim što ne upućuju na značajno povećanja odštetnih zahtjeva za neimovinsku štetu u pedijatriji ujedno ukazuju da se opisani svjetski trendovi povećanja odštetnih zahtjeva za liječničke pogreške nisu odrazili na hrvatsku pravnu praksu.

Rezultati istraživanja pokazuju da u Hrvatskoj ne postoji signifikantno povećanje broja odštetnopravnih zahtjeva za neimovinsku štetu, odnosno, povredu prava osobnosti uslijed liječničke pogreške u pedijatriji. Drugim riječima, trend u Republici Hrvatskoj ne prati trendove svjetske pravne prakse u tom području, a pedijatrija kao zdravstvena djelatnost nije posebno izložena riziku odštetnopravnih zahtjeva.

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SAŽETAK

Frequency of liability for damages in violation of legal standard of due care in pediatrics as a healthcare profession

Dominik Vuletić

Objective: The phenomenology of legal practice records emergence of the entire industry of medical liability lawsuits or litigation on global level. Consequently, there has been an increasing trend of legal proceedings against health care providers. Relevant research shows that the risk of exposure to compensation claims for doctors in paediatrics is higher than in other areas of medicine.

Methods: In order to determine whether the aforementioned global trend was also reflected in Croatian legal practice, this research produces a survey of the frequency of final judicial decisions on compensation claims due to medical errors in the period from 2019 to 2023. The research also took into account the strongest correlation factor: malpractice. Methodologically research encompassed case law of domestic courts in the mentioned period recorded in the Jus info database and recorded the number of decisions on medical error and malpractice by year, then narrowing the results down to paediatric cases, i.e. cases where a decision was made on the existence of a paediatrician's medical error.

Results: A total of 54 decisions on the existence or non-existence of a medical error were observed in the relevant period, of which the largest number (31.5%) was recorded in 2021. The total number of decisions on malpractice is half that (N=26), with the highest frequency (27%) recorded in the first year of the observed period. In the entire period of interest, only one decision refers to a paediatric case (N=1).

Conclusions: The results of this research show that in Croatia there is no significant increase in the number of compensation claims for damages due to medical errors in paediatrics. In other words, the trend in the Republic of Croatia does not follow the trends of global legal practice in that area.

Key words: LEGAL ASPECTS; COURT DECISIONS; CHILDREN; DELIVERY OF HEALTHCARE; PEDIATRICS

Ventriculoperitoneal shunt as a risk factor for extraneural dissemination of atypical teratoid/rhabdoid tumor in children

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Atypical teratoid/rhabdoid tumor (ATRT) is a rare but aggressive malignancy of the pediatric central nervous system (CNS), predominantly affecting children under the age of three. Despite its low frequency, ATRT constitutes a notable proportion of embryonal CNS tumors, particularly within the first year of life. The prognosis for ATRT patients is generally poor, with a significant decline in survival rates when metastasis is detected at diagnosis. Treatment typically involves a multimodal approach including surgery, radiation therapy, and chemotherapy, although outcomes remain suboptimal, especially in cases with younger age at diagnosis and metastases. ATRT exhibits distinct radiological and histopathological characteristics, presenting challenges in diagnosis and treatment planning. Additionally, extraneural metastatic spread of ATRT, although rare, can occur, with ventriculoperitoneal (VP) shunts identified as potential routes for dissemination. We present an extremely rare case of extraneural dissemination into the abdominal cavity along ventriculoperitoneal shunt in a 4-year-old boy. This is a type of extraneural dissemination in children that has only been published once and we are the first to present in Croatia. This case report highlights the diagnostic and therapeutic complexities associated with ATRT, emphasizing the importance of comprehensive staging, genetic evaluation, and vigilant surveillance for potential metastatic spreading via VP shunt. Furthermore, it emphasizes the need for further research to improve treatment outcomes and identify prognostic factors for risk stratification in pediatric patients with ATRT.

Key words: RHABDOID TUMOR; CENTRAL NERVOUS SYTEM NEOPLASMS; ABDOMINAL CAVITY; VENTRICULO-PERITONEAL SHUNT; MAGNETIC RESONANCE IMAGE

INTRODUCTION

Despite representing only 1–2% of all pediatric central nervous system (CNS) tumors, atypical teratoid/rhabdoid tumor (ATRT) emerges as a notably common malignancy during early childhood, with approximately three-quarters of afflicted individuals being under the age of three. Within this age cohort, ATRT comprises around 20% of embryonal CNS tumors and an even more substantial proportion, ranging from 40% to 50%, of all CNS malignancies within the first year of life. While early studies indicated an average survival of around 12 months, there have been reports of long-term survivors, especially among individuals who underwent intensive multimodal therapy (1, 2).

ATRT presents as a histologically diverse neoplasm, characterized by the presence of dispersed rhabdoid cells alongside large epithelioid cells, primitive neuroectodermal cells, and mesenchymal and/or glial cells. It is categorized within the broader spectrum of rhabdoid tumors. Throughout this

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case report, the term ATRT specifically pertains to CNS tumors, while the term rhabdoid tumor encompasses both CNS and non-CNS variants. This case report exclusively focuses on CNS ATRT. Notably, in pediatric cases, approximately half of all ATRTs originate in the posterior cranial fossa. The World Health Organization (WHO) formally recognized ATRT as a distinct diagnostic category in 2000, and in the 2021 WHO classification, there is an emphasis on the necessity of genetic examination alongside neuropathologic assessment for definitive diagnosis. Furthermore, according to the 2021 WHO classification, ATRT is classified as a grade IV tumor (2–4).

The prognosis notably deteriorates in cases where metastasis is detected at the time of diagnosis, a scenario encountered in around 20% of instances. Typically, patients undergo multimodal treatment regimens incorporating a blend of surgical intervention, radiation therapy, conventional chemotherapy, intrathecal chemotherapy, and/or high-dose, marrow-ablative chemotherapy with autologous hematopoietic cell rescue (5).

ATRT possess a distinctively aggressive biological behavior, marked by local invasiveness and a propensity for dissemination through cerebrospinal fluid pathways. Consequently, timely detection of ATRTs is imperative as these tumors necessitate prompt, targeted, and aggressive therapeutic interventions compared to other high-grade malignancies (6).

Magnetic resonance imaging (MRI) of the brain, along with lumbar puncture for cerebrospinal fluid (CSF) analysis, is imperative for comprehensive staging of the disease extent and guides the intensity of therapeutic interventions. Approximately 25% to 40% of patients exhibit manifestations of posterior fossa syndrome, typified by the triad of mutism, emotional instability, and ataxia, which may result in enduring neuropsychiatric complications (7).

The majority of ATRT cases are characterized by bi-allelic loss of function mutations in the SMARCB1 gene, while the remaining cases exhibit mutations in the SMARCA4 gene. Despite significant morphologic variability, rapid histologic diagnosis of ATRT is facilitated by the loss of INI1 (SMARCB1) or BRG1 (SMARCA4) through immunohistochemical staining. Approximately one-third of ATRT patients harbor an underlying germline SMARCB1 alteration, predisposing them to rhabdoid tumor predisposition syndrome and the risk of multiple CNS and non-CNS rhabdoid tumors. The recognition of ATRT as a distinct entity has led to disease-specific approaches employing intensive multimodal therapies, resulting in improved survival outcomes. However, current treatment options are associated with high toxicity, and there is ongoing exploration of how molecular subgroups and other prognostic factors can inform treatment stratifi-

cation in future clinical trials. While survival rates have seen improvement with the implementation of multi-modality therapies, outcomes remain suboptimal, particularly in cases with younger age at diagnosis and metastases. Somatic inactivating alterations of SMARCB1, occurring in over 95% of ATRT patients, and mutations in SMARCA4 are hallmark features of this tumor (4, 8).

ATRT can be categorized into three main molecular subgroups based on distinct genetic and epigenetic signatures, each with unique histopathological and clinical features. These subgroups include ATRT-SHH, ATRT-MYC, and ATRT-TYR. In this case report, we have no intentions going into immunohistochemical details of ATRT, but we will highlight key features of each subgroup to emphasize the importance of combining immunohistochemical findings with MRI images of the tumor, all in order to achieve a timely diagnosis.

ATRT-SHH subgroup is associated with activation of the sonic hedgehog pathway and Notch signaling. Histopathologically, it is presented with small-round-blue-cell morphology. The ATRT-MYC subgroup is defined by dysregulation of the MYC pathway. Immunohistologically, it may present with mesenchymal or rhabdoid features and epigenetically is similar to extracranial malignant rhabdoid tumors. The third subgroup, ATRT-TYR, is characterized by overexpression of tyrosinase, one of the key enzymes in neural tube development, and often display epithelial features. Epigenetically, this subgroup is linked to cribriform neuroepithelial tumors, suggesting shared developmental pathways (1).

CASE REPORT

We present a retrospective case report from 2017, when a 4-year-old boy was admitted with symptoms that began with a headache accompanied by occasional vomiting. After 10 days, the headaches recurred, primarily located in the occipital region, and during a period of 3 days, vomiting occurred twice daily, mostly in the afternoon or early morning. Throughout this time, the patient remained afebrile. Physical examination showed an uncoordinated walk. Brain MRI revealed a 4.9x3.9x4.6 cm mass filling the suprasellar region, third ventricle, and left lateral ventricle, consequently resulting in hydrocephalus. The mass showed an isointense signal to the cortex in T1, slightly hyperintense in T2 and BLADE, high signal in DWI with restriction in ADC, without postcontrast enhancement (Figure 1). Also, there was evidence of CSF and leptomeningeal dissemination presented as small nodular masses with the same MRI characteristic in the pineal region, olfactory sulcus, interpeduncular fossa, fourth ventricle, insular region, and left parietal lobe. Spinal MRI was normal. According to the heterogeneous MRI characteristics

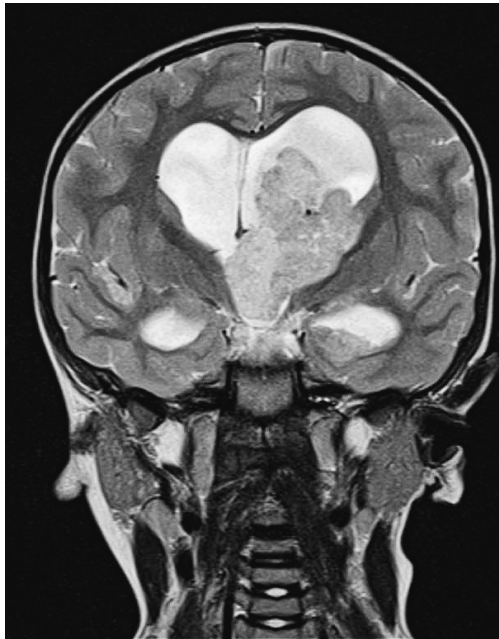


FIGURE 1. T2 coronal: extensive mass in third and left lateral ventricle

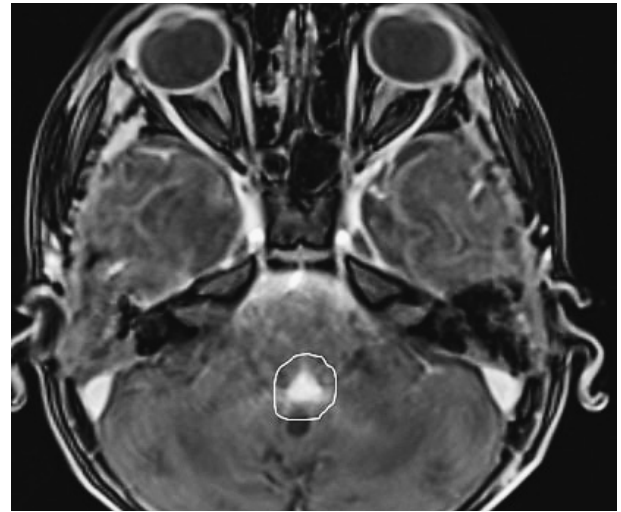


FIGURE 2. Postcontrast T1 fat sat axial: tumor recurrence in the IV. ventricle with postcontrast enhancement

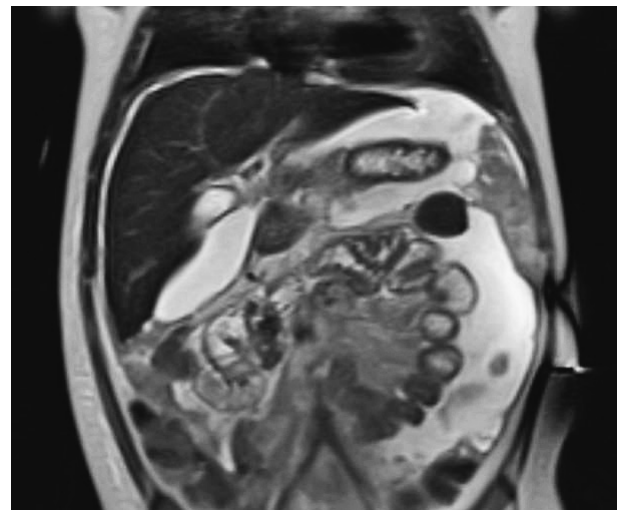


FIGURE 3. T2 coronal abdomen: extensive intraperitoneal fluid (ascites)

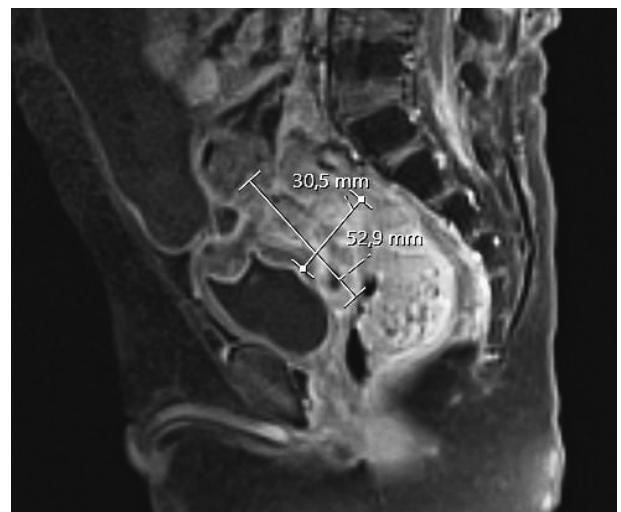


FIGURE 4. Postcontrast T1 fat sat sagittal: thick urinary bladder posterior wall with heterogeneous postcontrast enhancement tumor mass

of the mass and its location, the neuroradiologist concluded that it was most likely an ATRT. The next day after the initial MRI, parietal craniotomy was performed, and the gross tumoral mass was resected. Due to hydrocephalus, a ventriculoperitoneal (VP) shunt catheter was inserted. The histopathologic diagnosis was an atypical teratoid rhabdoid tumor (ATRT) due to the tissue consisting of densely packed small mitotically active primitive neuroectodermal cells, positive for vimentin, while negative for GFAP, neurofilament, NeuN, chromogranin A, IDH, and INI1. INI1 was negative due to the SMARCB1 gene expression being lost. Ki67 was 80%. DNA methylation was not performed at that period as it was not available. The postoperative staging based on histopathology and intraoperative phenotype of the mass resulted in a diagnosis of ATRT stage M2. Chemotherapy was performed in the post-operative period following the European Rhabdoid Registry (EuRhab) protocol with a combination of IT for a total of four months. At another hospital, the patient received whole-brain (35 Gy, proton radiotherapy with pencil-beam scanning (PBS)) and spine radiation (19.8 Gy PBS) for two months. After 8 months of follow-up, MR revealed frontal lobe necrosis with radiation-induced leukoencephalopathy and tumor recurrence in the IV. ventricle with postcontrast enhancement (Figure 2). Also, MR showed bilateral pleural effusion with ascites in the abdominal cavity (Figure 3) and a tumor mass in the posterior wall of the bladder (Figure 4). Urgent ultrasound-guided drainage of ascites was performed. Immunohistochemical analyses of abdominal fluid revealed identical phenotypic patterns as for the primary CNS tumor, including small-round-blue-cell morphol-

ogy, indicative of a metastatic spread of the AT/RT to the abdominal cavity. During chemotherapy and radiotherapy, the patient experienced various complications, including Klebsiella pneumonia, myoclonic seizures, and an infection caused by methicillin-resistant *Staphylococcus aureus* (MRSA). The patient died due to the complications and was on palliative therapy 12 months after diagnosis.

DISCUSSION AND CONCLUSION

We present a patient who had a highly malignant CNS tumor, ATRT, and extraneural spread associated with a VP shunt. Firstly, there are many potential pitfalls in diagnosing ATRT. The radiological appearance of ATRT is highly heterogeneous, lacking pathognomonic features, and may emerge throughout the CNS, warranting consideration during the assessment of any aggressive intracranial tumor in young children. Typically, they manifest as large, heterogeneous masses with varying signs of necrosis, hemorrhage, and peritumoral edema. While primarily found within brain tissue, ATRTs can also originate along cranial nerves or within the skull base. Due to their dense cell structure, ATRTs often show limited diffusion on MRI (9). The majority of ATRT cases occur in very young children, whose unfused skull sutures allow for progressive cranial pressure build-up during tumor growth. Consequently, symptom onset may be delayed. Furthermore, nonspecific symptoms such as irritability and vomiting can be challenging to articulate in these young patients, leading to diagnostic delays (10). Achieving complete surgical resection is often difficult, primarily due to both the tumor's location and the potential for ATRT dissemination upon initial examination. Additionally, germline mutations of SMARCB1/SMARCA4 have been linked to poorer survival outcomes. Factors such as the extent of resection, older age, and the presence of metastases at presentation are significantly correlated with overall survival (11). There are several reports where the VP shunt is evaluated as the key risk factor for seeding along the track (12). However, there is only one case report of ATRT metastatic spread to the abdominal cavity due to a VP shunt in children (13). Extraneural metastatic spreading of the CNS primary tumor is very rare, but radiologists during follow-up MRI reporting need to be aware of potential risk factors such as the spread via a VP shunt and consider including the abdomen in MRI follow-up, especially if the amount of intra-abdominal fluid increases. While this occurrence is exceptionally rare, it's essential to highlight VP shunts as a potentially "dangerous pathway" for tumor spread to peripheral areas. This is particularly significant given that VP drainage is frequently necessary, as hydrocephalus is a common feature in the initial presentation of brain tumors in approximately 50% of pediatric cases (14).

Abbreviations:

ATRT	– atypical teratoid/rhabdoid tumor
CNS	– central nervous system
MRI	– magnetic resonance imaging
CSF	– cerebrospinal fluid
VP	– ventriculoperitoneal
EurRhab	– European Rhabdoid Registry
PBS	– pencil-beam scanning
MRSA	– methicillin-resistant <i>Staphylococcus aureus</i>

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SAŽETAK

Ventrikuloperitonealna drenaža kao rizični faktor ekstraneuralne diseminacije atipičnog teratoidnog/rabdoidnog tumora u djece

Filip Murn, Sandro Gašpar, Tonći Grmoja, Filip Jadrijević-Cvrlje, Ana Tripalo-Batoš, Rhea Mužar, Goran Roić

Atipični teratoidni/rabdoidni tumor (ATRT) rijetki je, ali agresivni maligni tumor središnjeg živčanog sustava (SŽS), koji se uglavnom javlja kod djece mlađe od tri godine. Unatoč niskoj učestalosti, ATRT čini značajan udio embriogenih tumora SŽS-a, posebno u prvoj godini života. Prognoza za pacijente s ATRT-om općenito je loša, s značajnim padom stopa preživljavanja kada se otkrije metastaza pri dijagnozi. Liječenje uključuje multimodalni pristup koji obuhvaća kirurgiju, radioterapiju i kemoterapiju, iako su rezultati i dalje suboptimalni, posebno u slučajevima s mlađom dobi pri dijagnozi i metastazama. ATRT pokazuje specifične radiološke i histopatološke karakteristike, što predstavlja izazove u dijagnostici i planiranju liječenja. Dodatno, ekstraneuralno metastatsko širenje ATRT-a, iako rijetko, može se dogoditi, pri čemu su ventrikuloperitonealni (VP) šuntovi identificirani kao potencijalne rute širenja. Predstavljamo izuzetno rijedak slučaj ekstraneuralnog širenja u trbušnu šupljinu duž ventrikuloperitonealnog šanta kod dječaka u dobi od 4 godine. Ovo je vrsta ekstraneuralnog širenja kod djece koja je objavljena samo jednom, a mi smo prvi koji je predstavljamo u Hrvatskoj. Ovaj prikaz slučaja ističe dijagnostičke i terapijske kompleksnosti povezane s ATRT-om, naglašavajući važnost staginga, genetske evaluacije i redovnih kontrola zbog potencijalnog metastatskog širenja putem VP šanta. Nadalje, ističemo potrebu za daljnjim istraživanjem radi poboljšanja ishoda liječenja i identifikacije prognostičkih čimbenika za stratifikaciju rizika kod pedijatrijskih pacijenata s ATRT-om.

Ključne riječi: RABDOIDNI TUMOR; NEOPLAZME SREDIŠNJEG ŽIVČANOG SUSTAVA; ABDOMINALNA ŠUPLJINA; VENTRIKULO-PERITONEALNI ŠANT; MAGNETSKA REZONANCIJA

Our experience in the podological analysis of children with motor disorders (20 cases)

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Introduction and Importance: Pediatric patients with neuromotor disorders frequently experience various podiatric conditions. The effectiveness and implications of treatments like orthotics and insoles in this demographic are not thoroughly understood, highlighting a significant gap in podiatric research and clinical practice.

Case Presentation: This observational study analyzed 20 pediatric patients with neuromotor disorders. The focus was on common foot conditions such as ingrown toenails and hyperhidrosis, and their association with treatments like orthotics, insoles, and surgical interventions like Achilles tendon lengthening.

Clinical Discussion: Statistical analysis using chi-square tests revealed significant associations. Notably, orthotic use was linked to a higher incidence of ingrown toenails ($\chi^2 = 5.69, p = 0.017$). In contrast, insole usage correlated with increased hyperhidrosis ($\chi^2 = 4.44, p = 0.035$).

Additionally, a significant tendency for orthotic use was observed in patients who underwent Achilles tendon lengthening ($\chi^2 = 8.15, p = 0.017$). The study also highlighted the prevalence of brittle nails and hyperkeratosis among the participants.

Conclusion: The findings emphasize the critical role of podiatrists in the management of foot conditions in pediatric neuromotor disorder patients. While interventions like orthotics are generally beneficial, they may also exacerbate or contribute to other conditions, necessitating regular and careful podiatric monitoring. The study advocates for future research with larger sample sizes and controlled study designs to further validate and expand upon these observations.

Key words: MOTOR NEURON DISEASES; PODIATRY; PATIENT; CHILD; FOOT DISEASE

INTRODUCTION

The role of the podiatrist (1), a healthcare profession that is often under-recognized, is crucial in the multidisciplinary approach to managing disabling conditions, particularly those of neurological origin in the pediatric population (2–7). The importance of podiatry, as a subspecialty within orthopedics, becomes even more pronounced when dealing with young patients, where the emphasis should be on prevention as a primary intervention, in line with ethical principles (8, 9). Podiatrists participate with assessment and diagnosis, orthotic management, foot care and monitoring, collaboration with multidisciplinary teams, education, and support. In this study, we explore the podiatric issues, often multiple in a single clinical case, encountered in children

with neuromotor disorders. We consider delicate situations where a podiatrist may not be able to change the life of a child who, for example, walks with the aid of a brace, but can certainly alleviate pain by addressing hyperkeratosis (10), ingrown toenails (11), and phalangeal deformities. Additionally, the podiatrist can recommend the appropriate foot orthosis to modify any pathological gait patterns (12,13). This study was conducted at the Physical therapy Unit, where not only children with neurological conditions

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are treated, but also patients with orthopedic issues and other conditions. These pediatric patients, aged between 4 and 16 years, presented with various conditions that led to motor deficits and, consequently, podiatric problems. We observed the different podiatric pathologies specific for each patient, assessed the conservative treatments previously adopted, and proposed podiatric solutions where appropriate. The aim of this study is to describe the podiatric issues of the foot in children with neuromotor disorders. We seek to determine whether there is a correlation between neuromotor deficits and the onset of podiatric issues, and how frequently these issues occur within the examined case series.

METHODS

This research adopted an observational case series design, aiming to provide a comprehensive overview of podiatric issues in children with neuromotor disorders. By focusing on real-world clinical scenarios, this design allowed for a detailed examination of the specific podiatric challenges faced by this population and the interventions employed. The study population comprised 20 pediatric patients, aged between 4 and 16 years, who attended the pediatric physiatry outpatient clinic of the Hospital Orthopaedic. These patients were selected based on the presence of motor deficits that could potentially lead to podiatric problems. We ensured that the study captured a diverse range of neuromotor disorders and their associated podiatric issues.

The breakdown of the study population is as follows:

- **Cerebral Palsy (CP):** 9 subjects diagnosed with CP, a group of permanent movement disorders appearing in early childhood. These patients often exhibit gait abnormalities, muscle stiffness, and involuntary movements, all of which can contribute to podiatric challenges (14).
- **Idiopathic Toe-Walking (ITW):** 2 subjects who exhibited toe-walking without an identifiable cause. ITW can lead to issues such as muscle shortening, balance problems, and increased risk of tripping, necessitating podiatric intervention (15).
- **Genetic Syndromes:** 9 subjects diagnosed with genetic syndromes known to impact the musculoskeletal system. This group included patients with Marfan syndrome (16), characterized by elongated limbs and flexible joints, and Ehlers-Danlos syndrome (17), known for hypermobility and skin that can be easily bruised. Both conditions can lead to unique podiatric challenges.

For each patient, a detailed medical history was taken, focusing on previous podiatric interventions, current complaints, and any conservative treatments adopted. A thor-

ough physical examination was conducted, emphasizing the foot and lower limb. The findings were documented, and appropriate podiatric solutions were proposed based on individual needs.

The study received approval from our institutional review board. All participants provided informed consent in accordance with our institution's data collection and disclosure policy. Further ethical review was deemed unnecessary as no personally identifiable information was collected or stored.

Participants were recruited from the pediatric physiatry outpatient clinic of the Hospital Orthopaedic. The recruitment process was initiated by identifying potential candidates based on their medical records, which highlighted the presence of neuromotor disorders. To ensure a comprehensive representation of the target population, the clinic's database was systematically screened for patients aged between 4 and 16 years with a diagnosis of cerebral palsy, idiopathic toe-walking, or specific genetic syndromes (Marfan syndrome, Ehlers-Danlos syndrome). Once potential participants were identified, the research team approached them (or their guardians) during their routine clinic visits. They were provided with detailed information about the study's objectives, procedures, potential benefits, and risks.

Inclusion Criteria:

- Pediatric patients aged between 4 and 16 years.
- Diagnosis of cerebral palsy, idiopathic toe-walking, or genetic syndromes (Marfan syndrome, Ehlers-Danlos syndrome).
- Presence of motor deficits leading to podiatric problems.
- Willingness to participate in the study and adhere to follow-up schedules.

Exclusion Criteria:

- Patients outside the age range of 4-16 years.
- Absence of neuromotor disorders.
- Previous surgical interventions related to the foot or lower limb within the past six months.
- Any contraindication to podiatric interventions.

The primary outcome of this study was to evaluate the prevalence, and nature of podiatric issues in children with neuromotor disorders.

The primary aim of the statistical analyses was to provide a comprehensive overview of the podiatric issues in the study population and to identify potential correlations between neuromotor disorders and specific podiatric problems.

Determination of the number and percentage of participants presenting with specific podiatric issues, such as hyperkeratosis, Ingrown toenail, foot deformities, etc. Break-

down of the study population based on primary diagnosis (e.g., cerebral palsy, idiopathic toe-walking, genetic syndromes) to understand the distribution of neuromotor disorders.

Chi-Square Test: Used to test the association between two categorical variables, such as the type of neuromotor disorder (cerebral palsy, idiopathic toe-walking, genetic syndromes) and the presence of specific podiatric issues. It determines if the observed frequencies of occurrences differ significantly from what would be expected under the assumption of independence.

This study analyzed the foot conditions and treatments of 20 pediatric patients with neuromotor disorders. Associations between conditions like ingrown toenails, hyperhidrosis, and treatments such as orthotics, insoles, and surgical interventions were statistically evaluated using chi-square tests. The work has been reported in line with the PROCESS[18] criteria to ensure comprehensive and transparent reporting of this observational study.

RESULTS

The study encompassed a diverse group of participants (Table 1), with an average age of 10.90 years (SD: 14.78 years) and an average body mass index (BMI) of 18.81 kg/m² (SD: 2.74). The gender distribution was balanced, with both boys and girls each constituting 50% of the study population. In terms of diagnosis, cerebral palsy was the predominant condition, affecting 45% of the participants. Ehlers Danlos syndrome was diagnosed in 20%, while other conditions such as arthrogyrosis, Marfan syndrome, and syndrome 49 with xxxxy chromosomes (a variant of Klinefelter (19)) were less common. Regarding surgical interventions (Table 2), a significant portion (55%) of the participants had not undergone any. Achilles tendon lengthening was the primary surgical procedure, performed on 25% of the cohort. Additionally, 20% of the participants had received botulinum toxin injections. Orthotic use was prevalent in 55% of the participants, while 45% did not use them. When it came to insoles, 60% opted not to use them, with the remaining 40% incorporating them into their footwear. The study also shed light on various podiatric issues. Hyperkeratosis was observed in 30% of the participants, hyperhidrosis in 25%, and toe walking in 40%. Other conditions like brittle nails and ingrown toenails were noted in 10% and 40% of the participants, respectively. Misaligned toes were a concern for 30% of the cohort.

The data presents an exploration of the relationships between various foot conditions and the treatments or interventions applied. Ingrown Toenail & Orthotics: A notable association was observed between the use of orthotics and

TABLE 1. Demographic and Clinical Characteristics of Pediatric Participants with Neuromotor Disorders

Feature/Diagnosis	Frequency	% of Total	Cumulative %
Demographics			
Age (years)	10.90±4.78	-	-
Body mass index (kg/m ²)	18.81±2.74	-	-
Gender			
Men	10	50.0%	50.0%
Women	10	50.0%	100.0%
Diagnosis			
Arthrogyrosis	1	5.0%	5.0%
Cerebral palsy	9	45.0%	50.0%
Ehlers Danlos syndrome	4	20.0%	70.0%
Marfan syndrome	1	5.0%	75.0%
Syndrome 49 with xxxxy chromosomes (Variant of Klinefelter)	1	5.0%	80.0%
Toe-walker	2	10.0%	90.0%
Undiagnosed genetic syndrome	2	10.0%	100.0%
Surgical Interventions			
Achilles tendon lengthening	5	25.0%	25.0%
Botulinum toxin injection	4	20.0%	45.0%
None	11	55.0%	100.0%
Orthotics			
No	9	45.0%	45.0%
Yes	11	55.0%	100.0%
Insoles			
No	12	60.0%	60.0%
Yes	8	40.0%	100.0%
Hyperkeratosis			
No	14	70.0%	70.0%
Yes	6	30.0%	100.0%
Hyperhidrosis			
No	15	75.0%	75.0%
Yes	5	25.0%	100.0%
Toe walking			
No	12	60.0%	60.0%
Yes	8	40.0%	100.0%
Brittle nails			
No	18	90.0%	90.0%
Yes	2	10.0%	100.0%
Ingrown toenail			
No	12	60.0%	60.0%
Yes	8	40.0%	100.0%
Misaligned toes			
No	14	70.0%	70.0%
Yes	6	30.0%	100.0%

TABLE 2. Associations Between Foot Conditions and Treatments or Interventions in Pediatric Patients with Neuromotor Disorders

Feature/Diagnosis	Category	No	Yes	Total
Ingrown Toenail vs. Orthotics				
Orthotics	No	8	1	9
	Yes	4	7	11
Total		12	8	20
χ^2	Value: 5.69	df: 1	p: 0.017	
χ^2 (with continuity correction)	Value: 3.71	df: 1	p: 0.054	
Hyperhidrosis vs. Insoles				
Insoles	No	7	5	12
	Yes	8	0	8
Total		15	5	20
χ^2	Value: 4.44	df: 1	p: 0.035	
χ^2 (with continuity correction)	Value: 2.50	df: 1	p: 0.114	
Orthotics vs. Surgical Interventions				
Surgical Interventions	Achilles tendon lengthening	0	5	5
	Botulinum toxin injection	1	3	4
	None	8	3	11
Total		9	11	20
χ^2	Value: 8.15	df: 2	p: 0.017	
χ^2 (with continuity correction)	Value: 8.15	df: 2	p: 0.017	

Legend: Achilles Tendon Lengthening: Surgical procedure stretching the Achilles tendon for greater ankle movement, Botulinum Toxin Injection: Treats muscle stiffness/spasms or movement disorders, Brittle Nails: Nails easily cracked, chipped, split, or peeled, Hyperhidrosis: Excessive sweating, often affecting the feet, Hyperkeratosis: Thickened skin, commonly on the foot, Ingrown Toenail: Nail growing into the toe, often leading to infection, Insoles: Inserts inside shoes for foot support and alignment, Misaligned Toes: Toes not aligning naturally due to various reasons, Orthotics: External devices modifying the neuromuscular and skeletal system, especially for foot support, Toe Walking: Gait abnormality with walking on the balls of the feet

the presence of an ingrown toenail. Specifically, individuals using orthotics were more likely to have an ingrown toenail. The statistical significance of this relationship was evident ($p = 0.017$), though it became borderline upon applying a continuity correction ($p = 0.054$). Hyperhidrosis & Insoles: There was a suggested relationship between the use of insoles and the absence of hyperhidrosis. All individuals using insoles did not exhibit hyperhidrosis. While the initial chi-squared test indicated a significant association ($p = 0.035$), the significance diminished with continuity correction ($p = 0.114$). Orthotics & Surgical Interventions: A clear association emerged between the type of surgical intervention and the use of orthotics. All individuals who underwent Achilles tendon lengthening used orthotics. The relation-

ship was statistically significant ($p = 0.017$). Ingrown Toenail & Surgical Interventions: The data also hinted at a potential link between surgical interventions and the presence of an ingrown toenail. For instance, a majority of those who underwent Achilles tendon lengthening or Botulinum toxin injection had an ingrown toenail.

DISCUSSION

The data presented in this study offers a nuanced understanding of the relationships between various foot conditions and the treatments or interventions applied to pediatric patients with neuromotor disorders. The statistical findings further emphasize the indispensable role of the podiatrist in addressing and managing these conditions. A significant association was observed between the use of orthotics and the presence of ingrown toenails. While orthotics are designed to provide structural support, they might inadvertently contribute to certain conditions, possibly due to pressure distribution or the fit of the orthotic. The chi-square test indicated a significant association ($\chi^2 = 5.69$, $p = 0.017$), underscoring the importance of regular monitoring by a podiatrist. Contrary to our initial hypothesis, the data suggests that the use of insoles might be associated with an increase in hyperhidrosis or excessive sweating. This association was statistically significant ($\chi^2 = 4.44$, $p = 0.035$). The role of the podiatrist becomes even more crucial in recommending the right type of insole and providing guidance on managing associated conditions like hyperhidrosis. The data also indicates that individuals who underwent specific surgical interventions, especially Achilles tendon lengthening, were more likely to use orthotics. This association was statistically significant ($\chi^2 = 8.15$, $p = 0.017$), suggesting a post-operative requirement for additional foot support. The study also revealed a high prevalence of conditions such as brittle nails and hyperkeratosis. These findings underscore the importance of regular podiatric care, as untreated conditions can lead to further complications. However, this study has its limitations. The observational nature of the study means we can identify associations but cannot establish causality. Additionally, the relatively small sample size may limit the generalizability of the findings. Larger, controlled studies are needed to validate these observations. Furthermore, it is essential to consider the potential influence of external factors, such as footwear choices, daily activities, and overall health conditions, which might play a role in the observed associations. The multifaceted nature of foot health requires a comprehensive approach, integrating various medical specialties to ensure optimal patient care. The findings of this study pave the way for future research, emphasizing the need for interdisciplin-

ary collaboration and patient education to enhance the quality of life for individuals with neuromotor disorders.

Strengths:

Focused Cohort: The study specifically targets pediatric patients with neuromotor disorders, providing valuable insights into a specialized and often under-researched population.

Practical Relevance: The findings have direct implications for clinical practice, particularly in the field of podiatry, enhancing the understanding of treatment impacts.

Statistical Rigor: The use of chi-square tests for statistical analysis adds rigor to the findings, providing a reliable measure of the associations between different variables.

Limitations:

Observational Design: As an observational study, it can identify associations but cannot establish causality.

Small Sample Size: The relatively limited number of participants may affect the generalizability of the findings to a broader population.

Lack of Longitudinal Data: Without long-term follow-up, the study may not capture the full spectrum of the impact of treatments over time.

Potential for Unmeasured Confounding: There may be external factors not accounted for in the study that could influence the results.

CONCLUSIONS

In conclusion, while treatments and interventions like orthotics and insoles are valuable for patients with neuromotor disorders, the role of the podiatrist is paramount in ensuring optimal foot health. Their expertise is essential in monitoring, managing, and preventing potential associated conditions. Future studies should consider a larger sample size and a more diverse patient population to provide a more comprehensive understanding of these associations.

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SAŽETAK

Podološka analiza djece s motoričkim poremećajima (20 slučajeva) – naša iskustva

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Uvod: Pedijatrijski bolesnici s neuromotoričkim poremećajima često doživljavaju različita podijatrijska stanja. Učinkovitost i implikacije tretmana kao što su ortotika i ulošci u ovoj demografskoj skupini nisu u potpunosti shvaćene, naglašavajući značajnu prazninu u podijatrijskom istraživanju u kliničkoj praksi.

Prikaz slučaja: Ova opservacijska studija analizirala je 20 pedijatrijskih bolesnika s neuromotoričkim poremećajima. Fokus je bio na uobičajenim stanjima stopala kao što su urali nokti i hiperhidroza i njihovoj povezanosti s tretmanima poput ortotike, uložaka i kirurških intervencija poput produljenja Ahilove tetive.

Klinička rasprava: Statistička analiza korištenjem hi-kvadrat testova otkrila je značajne povezanosti. Primjetno je da je korištenje ortotičkih pomagala povezano s većom učestalošću uralih noktiju ($\chi^2 = 5,69, p = 0,017$). Nasuprot tome, uporaba uložaka korelirala je s učestalom hiperhidrozom ($\chi^2 = 4,44, p = 0,035$). Primijećena je i značajna tendencija za korištenjem ortoze kod pacijenata koji su bili podvrgnuti produljenju Ahilove tetive ($\chi^2 = 8,15, p = 0,017$). Studija je također istaknula prevalenciju lomljivih noktiju i hiperkeratoze među sudionicima.

Zaključak: Rezultati istudije naglašavaju ključnu ulogu podijatara u liječenju stanja stopala u pedijatrijskih bolesnika s neuromotornim poremećajima. Iako su intervencije poput ortoze općenito korisne, one također mogu pogoršati ili doprinijeti drugim stanjima, zahtijevajući redoviti i pažljivi podijatrijski nadzor. Studija zagovara buduća istraživanja s većim uzorkom i kontroliranim dizajnom studija kako bi se ta zapažanja dodatno potvrdila i proširila.

Ključne riječi: BOLESTI MOTORNIH NEURONA; PODIJATRIJA; PACIJENT; DIJETE; BOLEST STOPALA

Stečena koagulopatija u trogodišnjeg dječaka s makrohaturijom – prikaz bolesnika

Karolina Malić Tudor¹, Višnja Armanda²

Stečena koagulopatija je rijedak, potencijalno životno ugrožavajući poremećaj na koji treba posumnjati u slučaju akutnog krvarenja u bolesnika s prethodno negativnom hemoragijskom dijatezom. Nastaje zbog stvaranja protutijela na faktore zgrušavanja u prethodno zdravog djeteta ili odraslog, koja specifično djelomično ili potpuno neutraliziraju prokoagulantnu aktivnost faktora zgrušavanja ili pospješuju njihovo uklanjanje iz cirkulirajuće krvi, smanjujući njihove plazmatske koncentracije i povećavajući sklonost krvarenju.

Navedeni poremećaj treba potvrditi određivanjem globalnih koagulacijskih pretraga, koncentracija pojedinih faktora zgrušavanja te utvrđivanjem prisutnosti specifičnih ili nespecifičnih protutijela. Pravodobno liječenje s ciljem promptnog zaustavljanja krvarenja i eradikacije nastalih inhibitora spriječit će nepovoljan ishod ovog poremećaja. Preporuča se nastaviti ambulanti nadzor bolesnika s određivanjem PV-a i APTV-a tijekom godine dana, jer u 20% slučajeva dolazi do relapsa bolesti, iako češće u odraslih.

U radu smo prikazali trogodišnjeg dječaka kojem smo dijagnostičkom obradom makrohaturije utvrdili produljena globalna koagulacijska vremena te prisutnost nespecifičnih inhibitora na faktore koagulacije F II, F IX, F XI i F XII. Na primijenjeno liječenje svježeg smrznutom plazmom i kortikosteroidima postignuto je kliničko poboljšanje i remisija bolesti.

Stečena koagulopatija je vrlo rijedak poremećaj u dječjoj dobi o kojem postoji malo podataka u literaturi. Cilj ovog rada je prikazati moguće uzroke, klinički tijek i liječenje ovog životno ugrožavajućeg poremećaja u djece.

Ključne riječi: HEMOSTAZA; FAKTORI ZGRUŠAVANJA; INHIBITORI FAKTORA ZGRUŠAVANJA; DJECA; KRVARENJE

UVOD

Stečena koagulopatija je rijedak poremećaj koji je posljedica stvaranja protutijela na faktore zgrušavanja u prethodno zdrave osobe. Nastala protutijela specifično djelomično ili potpuno neutraliziraju prokoagulantnu aktivnost faktora zgrušavanja ili pospješuju njihovo uklanjanje iz cirkulirajuće krvi, smanjujući njihove plazmatske koncentracije i povećavajući sklonost krvarenju. Protutijela mogu biti usmjerena protiv F I, F II, F V, F VII, F VIII, F IX, F X, F XI, F XIII te von Willebrandova faktora (vWF), a najčešće nastaju protiv F V i F VIII (1).

Stečena koagulopatija može biti uzokovana akutnom infekcijom, lijekovima, limfoproliferativnim poremećajem, autoimunom ili malignom bolešću, a u 30- 50% slučajeva etiologija je nepoznata (1).

Navedeni poremećaj treba razlikovati od stvaranja aloantitijela u djeteta s prirođenim teškim poremećajem zgrušavanja (hemofilijom A ili B), koja se stvaraju nakon izlaganja egzogenom koncentratu faktora zgrušavanja (1, 2).

Incidencija stečenih koagulopatija iznosi od 0.2-1.0/1 000 000 stanovnika godišnje, sa smrtnošću od 8-22% (1). Razdioba je dobno bifazična, najčešće nastaju u dobi od 20. do 30. godine i u starijih od 70 godina (1). Podatci o ukupnoj incidenciji

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TABLICA 1. Prikaz vrijednosti hemoglobina, trombocita, PV, APTV, F II, F IX, F XI i F XII, biokemijskog nalaza urina te LA na dan prijema u našu ustanovu, 9. dana terapije kortikosteroidima, na dan otpusta te tijekom iduća tri kontrolna pregleda.

	1. dan	9. dan	na dan otpusta	1. kontrola	2. kontrola	3. kontrola
Hb (g/L) (109-138)	111	124	133	134	128	127
Tr (10 ⁹ /L) (150-450)	294	524	454	346	299	302
PV (>0.70)	0,46	1,05	1,14	1,06	1,11	1,1
APTV (s) (23.2-30.4)	48,3	28,30	21,2	22,3	23,7	22,5
F II (0.7-1.2)	0,12	0,69	1,17	1,11	1,12	1,11
F IX (0.7-1.2)	0,06	0,28	1,15	1,13	1,11	1,11
F XI (0.7-1.2)	0,07	0,44	1,13	1,12	1,1	1,1
F XII (0.7-1.5)	0,08	0,41	1,05	1,04	1,03	1,05
Urin (E/Hb)	3+	neg	neg	neg	neg	neg
Urin (broj E)	masa	1	2	1	1	2
LA (<1.20)	2,33	1,78	1,52	<1,23	<1,23	<1,23

stečenih koagulopatija u djece u literaturi nisu dostupni, dok se incidencija stečene hemofilije A procjenjuje na 0.045/1 000 000 djece mlađe od 16 godina godišnje (1, 3).

Osim oskudnih epidemioloških informacija, nema dovoljno podataka o kliničkom tijeku i preporukama za liječenje ovog potencijalno životno ugrožavajućeg poremećaja.

Cilj ovog rada je prikazati moguće uzroke, klinički tijek i mogućnosti liječenja stečenih koagulopatija u djece.

PRIKAZ SLUČAJA

Dječak dobi od 3 godine i 4 mjeseca, urednog dosadašnjeg rasta i razvoja, neupadne osobne anamneze i bez zabilježene sklonosti krvarenju, upućen je dogovorno iz lokalne bolnice na obradu i liječenje makrohaturije i patološkog nalaza koagulograma. Otac dječaka boluje od blagog oblika hemofilije A.

Dječak je posljednjih tjedan dana imao svakodnevno jednu proljevastu stolicu bez patoloških primjesa i bez vrućice, a na dan prijema razvio je makrohaturiju. Pri prijemu je bio urednog stanja svijesti, stabilnih vitalnih funkcija (krvni tlak 97/61 mmHg, puls 105/min, rekapilarizacijsko vrijeme 2 s, saturacija O₂ 99%), kontakta primjerenog dobi. Osim bljedooće kože i vidljivih sluznica, ostali klinički i neurološki status je bio uredan. U nalazima laboratorijske obrade uz urednu kompletnu i diferencijalnu krvnu sliku te nalaze biokemijskih pretraga, uključujući testove bubrežne funkcije, potvr-

dili smo produljeno protrombinsko (PV) i aktivirano parcijalno tromboplastinsko vrijeme (APTV), kao i snižene vrijednosti F II, F IX, F XI i F XII, uz pozitivan test probira na F IX i potvrđenu prisutnost nespecifičnih inhibitora na F IX, dok su se vrijednosti ostalih faktora koagulacije korigirale u razrijeđenju plazme 1:3; dakle, radilo se o smanjenoj aktivnosti navedenih faktora zbog prisutnosti inhibitora koji interferiraju s koagulacijskim testovima ovisnim o fosfolipidima (Tablica 1). Nalaz kapaciteta primarne hemostaze je bio uredan, a tromboelastometrija je potvrdila sniženu aktivnost ili inhibiciju aktivnosti pojedinih faktora koagulacije (Tablica 1). U nalazu imunološke obrade utvrđen je povišen lupus antikoagulans (LA) i snižene komponente komplemента, dok je preostala imunološka obrada: antifosfolipidna protutijela (antikardiolipinska, beta 2 GPI), ENA (Ro, La, Sm, Scl-70, RNP i Jo-1), antitijela protiv stanične jezgre (IIF), antitijela protiv dvostruke uzvojnice (anti-dsDNA), protiv centromere (ACA-Cenp B) i histona (AHA) te reuma faktor bila negativna.

U nalazima mikrobiološke obrade urinokultura je bila sterilna, koprokultura na enteropatogenu i enterohemoragičnu *Escherichiu coli*, *Salmonella* i *Shigela species* je bila negativna, kao i analiza stolice na Adenovirus, Rotavirus i Norovirus. Serologija periferne krvi na viruse pristigla je IgG pozitivna na ParvoB19 virus i na HHV-6, bez potvrde akutne infekcije, a negativna na EBV i CMV. Serologiju na hepatitis B i C nismo učinili jer su vrijednosti jetrenih enzima bile uredne, a sono-

grafska obrada mokraćnog i probavnog sustava je bila bez patološkog nalaza.

Dječak je u županijskoj bolnici primio jednokratno vitamin K, a ujedno je započeto liječenje antibiotikom cefiksimum-trihidratom, koje je nastavljeno nakon primitka u našu ustanovu. Prvog dana boravka u našoj ustanovi dječak je primio transfuziju svježe smrznute plazme uz zaustavljanje makrohaturije, dok se u ponavljanim biokemijskim nalazima urina nadalje bilježila mikrohematurija. Nakon prispjeća nalaza imunološke i mikrobiološke obrade, šestog dana boravka, započeli smo kortikosteroidnu terapiju (metil-prednizolon u dozi od 2 mg/kg) uz gastroprotekciju, koja je provedena u punoj dozi 9 dana, potom je postepeno snižavana svaka 4 dana do ukidanja. Kortikosteroidno liječenje je ukupno primijenjeno tijekom nepunih 5 tjedana (24 dana).

U nalazima kontrolnog proširenog koagulograma bilježimo postupni oporavak globalnih koagulacijskih vremena, porast plazmatskih koncentracija faktora zgrušavanja, smanjivanje LA i normalizaciju biokemijskog nalaza urina. U nalazima kontrolne obrade učinjene na dan otpusta iz bolnice te nakon mjesec dana vrijednosti globalnih koagulacijskih vremena i faktora koagulacije su bile uredne (Tablica 1).

Dječak je 2 mjeseca nakon preboljenja stečene koagulopatije bio ponovno primljen u Kliniku za dječje bolesti KBC-a Split zbog desnostrane upale pluća, koja je liječena prvo ambulantno amoksicilin/klavulanskom kiselinom, a zatim hospitalno ceftriaksonom. Tijekom liječenja vrijednosti PV, APTV i razine svih faktora koagulacije su bile uredne (Tablica 1).

RASPRAVA

Stečena koagulopatija je vrlo rijedak poremećaj u djece o kojem u stručnoj literaturi postoji malo podataka. Većinom je idiopatska, a može nastati tijekom infekcija, primjene lijekova, kod autoimunih poremećaja poput sistemskog lupusa ili kod malignih bolesti (1, 2, 3).

Nastaje stvaranjem autoantitijela- IgG imunoglobulina, posebno podklase IgG4, koja djelomično ili potpuno neutraliziraju aktivnost pojedinih faktora zgrušavanja ili uzrokuju njihovo ubrzano uklanjanje iz plazme (4). U nalazima koagulograma tipično je produljenje vanjskog i/ili unutarnjeg puta zgrušavanja te sniženje plazmatske razine pojedinih faktora zgrušavanja (1, 2). Protrombinsko vrijeme (PV) mjeri vanjski put zgrušavanja, a produljeno je pri nedostatku ili inhibiciji F II, F VII, F IX i F X. Aktivirano parcijalno tromboplastinsko vrijeme (APTV) mjeri unutarnji put zgrušavanja i produljuju ga nedovoljne količine ili inhibirani F VIII, vWF, F IX, F XI i F XII. Manjak ili inhibicija fibrinogena, F II, F V i F X produljuju i PV i APTV (4).

Makrohaturija ili vidljiva krv u mokraći najčešće je uzrokovana infekcijama mokraćnog sustava (virusnim, bakterij-

skim ili tuberkulozom), bubrežnim kamencima, tumorom ili traumom mokraćnog sustava, bolestima prostate kod muškaraca te glomerularnim ili ne- glomerularnim bubrežnim bolestima poput renalnog infarkta, nekroze bubrežnih papila, tromboze renalne vene, sindroma Nutcracker, arteriovenskih malformacija i cistične bolesti bubrega.

Oboljeli od prirodnih koagulopatija rijetko krvare iz sluznice mokraćnog sustava, dok je makrohaturija izuzetno rijetka kod stečenih koagulopatija (5, 6).

U našeg bolesnika makrohaturija je bila praćena produljenjem oba globalna koagulacijska vremena PV-a i APTV-a, čiji su uzrok bile snižene vrijednosti F II, F IX, F XI i F XII. U testu miješanja bolesnikove i normalne plazme nije došlo do korekcije vrijednosti F IX, već smo pozitivnim testom probira utvrdili prisutnost inhibitora na F IX i dijagnosticirali stečenu hemofiliju B. Vrijednosti faktora koagulacije II, XI i XII su se u testu miješanja korigirale u razrijeđenju plazme 1:3, čime smo dokazali prisutnost inhibitora na navedene faktore koji interferiraju s koagulacijskim testovima ovisnim o fosfolipidima.

Diferencijalno dijagnostički uzrok navedenog poremećaja može biti stečena hemofilija B ili lupus antikoagulans-hipotrombinemija sindrom (LAHPS).

Stečena hemofilija B je vrlo rijedak poremećaj, opisano je svega par slučajeva u literaturi. Većinom se javlja u oboljelih od sistemskog lupusa, kolagenoza, hepatitisa, multiple skleroze, reumatske groznice te postpartalno. Uzrokovana je stvaranjem poliklonalnih IgG1 i IgG4 stečenih protutijela na F IX. Za razliku od nasljedne hemofilije B, stečena je obilježena pojavom krvarenja u kožu i u meka tkiva. U nalazima laboratorijske obrade produljeno je APTV zbog snižene plazmatske razine F IX i prisustva stečenih inhibitora, koje se ne korigira u potpunosti miješanjem s normalnom plazmom u odnosu 1:1 (1, 2, 4).

Franchini i sur. su u svom preglednom članku pretraživanjem literature ispitali 42 slučaja stečene hemofilije u djece, medijana dobi 5 godina, od kojih je u 37 oboljelih utvrđena prava stečena hemofilija, dok se u 5 opisanih slučajeva radilo o aloimunoj stečenoj hemofiliji uzrokovanoj postpartalnim transplacentarnim prijenosom inhibitora. U najvećem broju slučajeva (75,7%) su utvrđeni inhibitori na FVIII, u šestoro oboljelih antitijela na FIX te u dvoje na F XI. Klinički su se stečene hemofilije najčešće očitovale krvarenjima u kožu i u sluznice, s mogućim potencijalno smrtonosnim intrakranijalnim i retroperitonealnim krvarenjima. Krvarenja u zglobove, tipična za nasljedne hemofilije, nisu opisana. U 33% slučajeva radilo se o idiopatskom poremećaju, u 22% oboljelih koagulopatija je nastala tijekom uporabe antibiotika, a u 16% oboljelih zbog autoimune ili akutne infektivne bolesti (3). Slične rezultate opisali su *Green i Lechner te Moraca i Ragni* u svojim studijama (7, 8).

Osim F IX, u našeg bolesnika su bile snižene vrijednosti protrombina, F XI i F XII. Protutijela protiv F II nastaju primjenom fibrinskog ljepila tijekom srčanih ili neurokirurških operativnih zahvata, zatim kod autoimunih bolesti (SLE, RA) i antifosfolipidnog sindroma (1, 2). U antifosfolipidnom sindromu nastala protutijela su većinom usmjerena protiv protrombina te uzrokuju povećanu sklonost trombozi (4).

Protutijela protiv FXI utvrđena su u oboljelih od autoimunih bolesti poput SLE i kod virusnih pneumonija (1, 2, 4). Protutijela protiv F XII nastaju u oboljelih od SLE i praćena su smanjenom fibrinolitičkom aktivnošću, arterijskom trombozom i spontanom pobačajima (4).

Opisane su 2 vrlo rijetke stečene koagulopatije: lupus anti-koagulans – hipoprotrombinemija sindrom (LAHPS) definiran hipoprotrombinemijom i pozitivnim lupus antikoagulansom (LA) te LAHPS-u sličan sindrom (LLS) praćenim smanjenjem koncentracije drugih faktora zgrušavanja osim protrombina (9, 10, 11). Češće su u djece mlađe od 16 godina, nego u odraslih. Većinom nastaju u prethodno zdravog djeteta nakon virusne infekcije pri čemu aloantitijela stvorena na lipide ovojnice virusa uzrokuju nastanak imunih kompleksa s različitim faktorima zgrušavanja, posljedično prekomjerno uklanjanje faktora iz cirkulacije i smanjenje njihove koncentracije u plazmi. U kliničkoj slici umjesto protrombotskog stanja, prisutna je povećana sklonost krvarenju u obliku ekhimoza, epistakse, gastrointestinalnih krvarenja, makrohematurije i rijetko krvarenja u zglobove. U nalazu koagulograma produljeno je i PV i APTV te povišen lupus antikoagulans (LA), imunoglobulin koji koji produljuje APTV *in vitro*, ovisno o fosfolipidima. (7, 9, 10).

U našeg bolesnika je stečena koagulopatija sa sniženim F II, F IX, F XI i F XII nastala nakon akutnog enterokolitisa čiju etiologiju mikrobiološkom obradom nismo utvrdili. Također smo utvrdili snižene vrijednosti LA, koje su se na primjenu kortikosteroidne terapije brzo korigirale i bile su uredne 12 tjedana nakon, čime smo isključili sistemni lupus eritematosus. Snižene vrijednosti C3 i C4 komplementa mogle bi se objasniti nastankom imunih kompleksa faktora koagulacije i njihovih ne-neutralizirajućih protutijela te njihovim povećanim uklanjanjem iz organizma.

Među ostalim stečenim koagulopatijama hemofilija A je najčešća. Nastaje većinom u žena postpartalno ili u oboljelih od autoimunih bolesti poput antifosfolipidnog sindroma (APLAs) i SLE, u oboljelih od malignih bolesti i kod primjene lijekova, a u gotovo 50% oboljelih bolest je idiopatska. Incidencija iznosi 0.2-1 slučaj na milijun osoba godišnje (12, 13). Za razliku od prirodne hemofilije A, stečena se prezentira krvarenjima u kožu, mišiće, gastrointestinalni i mokraćni sustav te životno ugrožavajućima krvarenjem u središnji živčani sustav i u retroperitoneum, dok krvarenja u zglobove nisu tipična za ovaj poremećaj (12, 13, 14).

Stečena protutijela protiv FV su iznimno rijedak poremećaj, s manje od 200 prikazanih slučajeva u literaturi. Većinom nastaju kao posljedica izlaganja bovinom trombinu koji je prisutan u topičkom hemostatskom sredstvu tijekom kirurških zahvata (31%), potom kod infekcija (23%), pri primjeni β -laktamskih antibiotika (42%), kod autoimunih poremećaja (13%), malignih bolesti (22%) te transfuzije krvnih pripravaka (22%) (1). Klinički se navedena koagulopatija očituje kožnim, gastrointestinalnim, plućnim te intrakranijalnim krvarenjima u prethodno operiranog bolesnika. Produljeni su PV i APTV, koji se korigiraju nakon miješanja s normalnom plazmom (1, 4).

Stečeni inhibitori protiv FVII i FX opisani su u oboljelih od malignih bolesti, autoimunih bolesti (SLE, RA, Sjögrenov sindrom) te nakon izlaganja lijekovima (izonijazid, penicilin, fenitoin, amiodarone) (4). Kod prisustva inhibitora na FX produljeni su i PV i APTV jer F X pripada zajedničkom putu koagulacije (15).

Ichinose i sur. su u svom preglednom članku ispitali pojavnost inhibitora na FX u japanskoj populaciji tijekom trogodišnjeg razdoblja. Ukupno je opisano 26 slučajeva, s omjerom spolova M/Ž: 2.7 i medijanom godina 59. Prema etiologiji najčešće se radilo o idiopatskom poremećaju (35%), dok su infekcije bile uzrok u 25% slučajeva, a kod dva slučaja opisana u djece dobi 1,5 i 11 godina inhibitori su nastali zbog opsežnih opekline. Klinički se manjak F V očitovao krvarenjima u kožu i u potkožna tkiva, potom u crijeva, mokraćni sustav, a opsežno retroperitonealno krvarenje praćeno bubrežnim zatajenjem te krvarenje udruženo sa sepsom su u dvojice bolesnika rezultirali smrtnim ishodom (15).

Antifibrinogena protutijela su vrlo rijetka, obično su prisutna u žena peri- i postpartalno, pri Rh izoimunizaciji i kod kompliciranih trudnoća te u oboljelih od multiplog mijeloma. Klinički se prezentiraju teškim krvarenjima (4).

Autoantitijela na F XIII se većinom javljaju u odraslih, a praćena su vrlo teškim krvarenjima i povećanom smrtnošću (4). Opisana su kod autoimunih i malignih hematoloških bolesti (monoklonalna gamopatija), primjene lijekova poput izonijazida, penicilina, amiodarona te nakon biološke terapije anti IL-6 receptorom kod reumatoidnog artritisa (1, 2, 4).

Stečeni von Willebrand sindrom je vrlo rijedak poremećaj u djece, obilježen mukokutanom krvarenjima (epistaksom, meno-metroragijom, gastrointestinalnim krvarenjima). Nastaje u autoimunim, limfoproliferativnim i mijeloproliferativnim poremećajima, solidnim tumorima poput Wilmsovog tumora (nefroblastoma), kod kongenitalnih srčanih grešaka, hipotiroidizma, kolagenoza, kod primjene pojedinih lijekova poput valproične kiseline (3, 4).

Posljedica je jednog od sljedeća 4 mehanizma nastanka: 1) smanjene sinteze vWF kod hipotiroidizma i uz primjenu

valproata, 2) inhibicije autoantitijelima ili paraproteinima u B-staničnom limfomu, monoklinalnim gamapatijama, multiplom mijelomu i autoimunim poremećajima, 3) apsorpcije vWF multimeru u maligne stanice ili trombocite i 4) povećane proteolize kod aortne stenoze, umjetne srčane valvule ili srčanih grešaka koji remete tijek struje krvi.

Laboratorijskom obradom se potvrđuje smanjena ristocestinska aktivnost vWF:RCO, selektivni nedostatak multimeru vWF velike molekularne težine, te prisutnost inhibitora mjerenjem vWF aktivnosti nakon miješanja bolesnikove i normalne plazme (1, 2).

Dijagnoza stečenih koagulopatija postavlja se određivanjem globalnih koagulacijskih vremena, određivanjem koncentracije pojedinih faktora zgrušavanja unutarnjeg ili vanjskog puta koagulacije te testom miješanja (eng. „mixing test“) bolesnikove i normalne plazme u različitim razrjeđenjima prije i nakon inkubacije na temperaturi od 37 °C tijekom 2 sata (16).

Potpuna korekcija u navedenim testovima upućuje na sniženu aktivnost pojedinih faktora zgrušavanja, dok nepotpuna znači inhibiciju faktora zgrušavanja specifičnim ili nespecifičnim protutijelima poput lupus antikoagulansa (LA) (7). Razina inhibitora se utvrđuje mjerenjem u Bethesda jedinicama ili modificiranim Nijmegen testom te enzimatskom imunosorbentnom metodom (ELISA) (16).

Liječenje je usmjereno na što ranije zaustavljanje krvarenja i uklanjanje protutijela. Provode se opće mjere: odmaranje, izbjegavanje invazivnih dijagnostičkih procedura i operativnih zahvata, prekid uzimanja lijekova koji utječu na koagulaciju kao i lijeka koji bi mogao biti uzrok nastale koagulopatije (4).

U liječenju se primjenjuju svježe smrznuta plazma (SSP) koja nije najbolji izbor u liječenju stečenih hemofilija jer sadrži malu količinu faktora koagulacije koji se brzo inaktiviraju djelovanjem protutijela, a potreba za višekratnim transfuzijama može uzrokovati značajno volumno opterećenje. Primjena vitamina K nije učinkovita jer ovaj stečeni poremećaj nije uzrokovan njegovim nedostatkom (1, 2, 3). Stoga primjena vitamina K u našeg bolesnika nije omogućila zaustavljanje makrohaturije.

U liječenju stečenih koagulopatija se prvenstveno primjenjuju koncentracije pojedinih faktora zgrušavanja. Primjerice kod stečene hemofilije A primjenjuju se visoke doze koncentrata humanog ili svinjskog F VIII ili koncentrat aktiviranog protrombinskog kompleksa (aPCC, 50-100 IU/kg), a u slučaju teškog krvarenja i rekombinantni FVII (rF VII, 90-120 µg/kg) (1, 2, 3, 4).

Somarathne i sur. su u svom prikazu slučaja opisali uspješno liječenje 14-godišnjeg dječaka sa stečenom hemofilijom A i

krvarenjem u desnu natkoljenu kortikosteroidima, ciklofosfamidom i aPCC-om. (17).

Akutno krvarenje uzrokovano stečenom hemofilijom B se liječi primjenom rekombinantnog F IX i F VII (1).

U liječenju stečene koagulopatije na F V rabe se aPCC, transfuzija trombocita koji sadrže F V koji je u njima zaštićen od djelovanja protutijela te kod životno ugrožavajućeg krvarenja rFVII (1, 2).

U liječenju stečenog nedostatka F X primjenjuje se koncentrat F X, a pri stvaranju protutijela na F XIII koncentrat F XIII. Kod stečene vWF bolesti primjenjuje se dezmopresin i koncentrat FVIII/vWF za brzu kontrolu krvarenja (1, 2).

Imunosupresivno liječenje stečene koagulopatije primjenjuje se s ciljem zaustavljanja stvaranja stečenih protutijela na faktore zgrušavanja.

Prvu liniju predstavlja primjena kortikosteroida u preporučenoj dozi 1-2 mg/kg dnevno, podijeljena u 3-4 doze, tijekom 4-6 tjedana. Stoga smo u našeg bolesnika primijenili metil-prednisolon u dozi od 2 mg/kg/dnevno. Četvrtog dana liječenja došlo je do normalizacije nalaza urina i porasta vrijednosti F II, F IX, F XI i F XII, a devetog dana liječenja postigla se potpuna normalizacija nalaza i sniženje vrijednosti lupus antikoagulansa.

Ukoliko se primjenom kortikosteroida ne postiže kontrola krvarenja, preporuča se istodobna primjena kortikosteroida i drugih imunosupresivnih lijekova poput ciklofosfamida ili mikofenolat- mofetila. Opisani su slučajevi u kojima je uspješno primijenjen koncentrat humanih imunih globulina (IVIG) u visokoj dozi. Zbog brzog uklanjanja inhibitora iz cirkulacije mogu se primijeniti plazmaferza i imunoabsorpcija. U refraktornim slučajevima ili pri kontraindiciranoj primjeni drugih imunosupresivnih lijekova primjenjuje se liječenje rituksimabom, anti- CD20 monoklinalnim protutijelom (375 mg/m²), čime se postiže kontrola krvarenja i uklanjanje stečenih protutijela, većinom uz istodobnu primjenu kortikosteroida ili drugih imunosupresivnih lijekova (1, 9, 18, 19).

Fletcher i sur. su opisali prvi slučaj primjene rituksimaba u liječenju stečene hemofilije A u 5-godišnje djevojčice praćene krvarenjem, potom perforacijom crijeva i septičkim šokom, nastalim tijekom imunosupresivne terapije kortikosteroidima (18).

Stečene koagulopatije su povoljnijeg ishoda u djece nego u odraslih, lakše se i brže liječe jer većinom nastaju tijekom infekcije ili antibiotskog liječenja, a relapsi su izuzetno rijetki. U svom radu *Franchini i sur.* su potvrdili povoljan ishod i potpuni oporavak u 29 od 36 slučajeva (80,6%) (3).

Mišljenja smo da se u našeg bolesnika radilo o stečenoj, imunološki posredovanoj koagulopatiji koja je nastala nakon infekcije neutvrđene etiologije, a uzokovala je stvaranje protu-

tijela na više faktora zgrušavanja što je potvrđeno produljenjem PV-a, APTV-a i prisutnošću nespecifičnih inhibitora.

Kako je liječenje antibiotikom započeto nakon pojave makrohematurije i nakon utvrđenih sniženih vrijednosti faktora koagulacije, smatramo da koagulopatija nije bila uzrokovana navedenim lijekom.

Na primijenjeno imunosupresivno liječenje došlo je do potpunog oporavka. Dječaku smo tijekom idućih 6 mjeseci redovito ambulantno nadzirali koagulogram čiji su nalazi ponavljano bili uredni.

ZAKLJUČAK

Stečena koagulopatija je rijedak, potencijalno životno ugrožavajući poremećaj u djece na koji treba posumnjati u slučaju akutnog krvarenja u bolesnika s negativnom prethodnom osobnom i obiteljskom hemoragijskom dijatezom. Navedeni poremećaj treba potvrditi određivanjem globalnih koagulacijskih vremena, koncentracija pojedinih faktora zgrušavanja te utvrđivanjem prisutnosti specifičnih ili nespecifičnih protutijela na faktore zgrušavanja.

Pravodobno liječenje s ciljem promptnog zaustavljanja krvarenja i eradikacije nastalih inhibitora spriječit će nepovoljan ishod ovog poremećaja. Preporuča se nastaviti ambulantni nadzor bolesnika s određivanjem PV-a i APTV-a tijekom godine dana, jer u 20% slučajeva dolazi do relapsa bolesti tijekom prvih 12 mjeseci od završetka imunosupresivne terapije (18).

Popis kratica:

VWF	– von Willebrandov faktor
APTV	– aktivirano parcijalno tromboplastinsko vrijeme
PV	– protrombinsko vrijeme
RKV	– rekapilarizacijsko vrijeme
LA	– lupus antikoagulans
APLAs	– antifosfolipidni sindrom
SLE	– sistemi lupus
RA	– reumatoidni artritis
SSP	– svježe smrznuta plazma
APCC	– aktivirani protrombinski kompleks
IMG	– intravenski imunoglobulini
LAHPS	– lupus antikoagulans-hipoprotrombinemija sindrom
LLS-LAHPS-u	– sličan sindrom

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Summary

Acquired coagulopathy in a three-year-old boy with macrohaematuria – a case report

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Acquired coagulopathy is a rare, potentially life-threatening disorder which should be suspected if acute bleeding in patients with a negative previous hemorrhagic diathesis is encountered. This disease arises due to the formation of antibodies against clotting factors in a previously healthy child or adult, which specifically partially or completely neutralize the procoagulant activity of clotting factors or accelerate their removal from the circulating blood, reducing their plasma concentrations and increasing the bleeding tendency.

The aforementioned disorder should be confirmed by determining global coagulation times, concentrations of individual clotting factors, and determining the presence of specific or non-specific antibodies. Timely treatment aimed at prompt stopping of bleeding and eradicating the resulting inhibitors will prevent the unfavorable outcome. It is recommended to continue monitoring patients in the outpatient setting with determination of PT and APTT for a year, because in 20% of cases a relapse of the disease occurs, although more often in adults.

In this paper, we presented a three-year-old boy in whom we determined prolonged global coagulation times and the presence of non-specific inhibitors of the coagulation factors F II, F IX, F XI and F XII through the diagnostic workup of macrohematuria. The treatment with fresh frozen plasma and corticosteroids resulted in clinical improvement and disease remission.

Acquired coagulopathy is a very rare disorder in childhood with scarce literature data. The aim of this paper is to demonstrate the possible causes, clinical course and treatment of this life-threatening disorder in children.

Key words: HEMOSTASIS; COAGULATION FACTORS; BLOOD COAGULATION FACTOR INHIBITORS; CHILDREN; BLEEDING