Stručni članak

TERAPEUTSKO IZUZEĆE U SPORTU I ZLOUPOTREBA LEKOVA U CILJU POBOLJŠANJA SPORTSKIH PERFORMANSI^{1 2}

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Apstrakt: Sportisti, kao i obični ljudi, imaju pravo da se razbole i da se leče, ali ne smeju da koriste većinu lekova koji su za druge ljude uobičajeni, jer se nalaze na listi zabranjenih doping sredstava. Zbog toga je Svetska antidoping agencija (WADA - *World Anti-doping Agency*) uvela „Izuzeteće radi terapijske upotrebe u sportu“ skraćeno TUE (*Therapeutic Use Exemptions*), koje se podnosi u slučaju kada postoji indikacija za primenu supstanci i metoda sa liste zabranjenih sredstava. Ovo „izuzeteće“ služi da sportistu oslobodi opasnosti od proglašenja doping pozitivnim u toku ili van takmičenja. Poslednjih godina sve više se traže dozvole za terapijsku upotrebu nedozvoljenih lekova za lečenje, a cilj ovog rada je istražiti uzroke za traženje TUE, te da li postoji zloupotreba TUE sa ciljem poboljšanja sportskih sposobnosti i rezultata. Za prikupljanje, klasifikaciju i analizu ciljanih istraživanja korišćena je deskriptivna metoda i teorijska analiza, a podaci koji su korišćeni za potrebe istraživanja prikupljeni su uz pomoć Google Scholar, PubMed i KoBSON pretraživača. Ovaj rad u najvećoj meri potvrđuje da je primena glukokortikoida na svetskom nivou u cilju lečenja sportskih povreda najčešći uzrok zbog kojeg sportisti traže TUE odobrenje. Drugi na listi su stimulansi, za lečenje dijagnoze hiperaktivnosti i poremećaja pažnje (ADHD-a) kod sportista, a na trećem mestu su beta blokatori kod hronične opstruktivne bolesti pluća.

Ključne reči: *doping, terapijsko izuzeteće, glukokortikoidi, stimulansi, beta blokatori*

UVOD

Doping u sportu, u jednostavnom smislu, predstavlja svaku primenu supstanci ili metoda koje su zabranjene, a koji dovode do poboljšanja rezultata sportista. Prema definiciji WADA, neke od povreda

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antidoping pravila su: prisutnost zabranjenih supstanci ili njihovih metabolita, odnosno metabolita u telesnom uzorku sportista; upotreba ili spremnost na upotrebu zabranjenih metoda; posedovanje zabranjenih supstanci ili metoda kao i prodaja i distribucija zabranjenih sredstava; propisivanje zabranjene supstance bilo kom sportisti kao i asistiranje u dopingovanju, ohrabrivanje, pomaganje, prikrivanje ili bilo koja druga vrsta povrede antidoping pravila (WADA, 2021b).

Već tridesetih godina 20. veka stvoren je prvi sintetički testosteron. Ipak, smatra se da je ozbiljna borba sa dopingom počela tek posle tragičnih situacija na sportskom terenu. Prve zabeležene tragične situacije desile su se 1960. godine na Olimpijskim igrama u Rimu kada je sportista preminuo na terenu zbog primene amfetamina, ili nesrećni slučaj zabeležen na biciklističkom takmičenju Tour de France 1967. godine kada je jedan od takmičara preminuo tokom trke.

Gore navedene činjenice bile su samo jedan od povoda da Međunarodni olimpijski komitet (MOK) 1967. godine donese prva antidoping pravila i formira medicinsku komisiju za sprovođenje istih. To su bili počeci borbe sa dopingom koji nisu bili toliko uspešni, jer je kasnije otkriveno da su mnoge zemlje tadašnjeg Istočnog bloka, tokom sedamdesetih godina prošlog veka, sistemski koristile doping za svoje sportiste. U tome je prednjačila Istočna Nemačka (Franke & Bedrendonk, 1997). Problem je rastao iz decenije u deceniju i tek 1999. godine formirana je Svetska antidoping agencija koja je krenula u ozbiljnu i opsežnu borbu sa dopingom u sportu.

TEORIJSKI PRISTUP ISTRAŽIVANJU

Definicija i primena TUE u sportu

Postavlja se pitanje šta se dešava kada se sportisti razbole, povrede ili imaju neku hroničnu bolest koja zahteva određenu terapiju? I sportisti, kao i drugi ljudi, imaju pravo da se razbole i da se leče, ali ono što ih izdvaja je to da ne smeju da koriste lekove koji se nalaze na antidoping listi bez prethodne dozvole.

Lečenje lekovima koji se nalaze na listi zabranjenih supstanci, ponekad nema opravdanih osnova. Zahtev za „Izuzete radi terapijske upotrebe u sportu“ se podnosi u slučaju kada postoji indikacija za primenu supstanci i metoda sa liste zabranjenih sredstava, a služi da sportistu oslobodi opasnosti od proglašenja doping pozitivnim u toku ili van takmičenja (Gerrard & Pipe, 2017).

Svi sportsiti imaju pravo na TUE, ali postoje jasne indikacije za njegovo odobravanje. Kada se sportista razboli ili povredi i zbog toga mora da uzima određene lekove koji se nalaze na listi zabranjenih supstanci, ordinirajući lekar sa sportistom prethodno mora da podnese zahtev komisiji nadležne antidoping agencije za odobrenje TUE. Postoji veliki broj lekova koji služe za lečenje odgovarajućih bolesti a koji, ukoliko se primene kod zdravog sportiste, mogu da služe kao sredstva za poboljšanje sportskih sposobnosti. U ove lekove najčešće se ubrajaju: testosteron, insulin, diuretici, beta 2 agonisti, psihostimulansi, glukokortikosteroidi i hormon rasta. Očigledno je da su terapijski efekti ovih lekova često zloupotrebjavani od strane sportista, najpre u vidu bržeg oporavka od povrede ili bolesti, a onda i u smislu poboljšanja sposobnosti. Zbog toga postoje odgovarajući kriterijumi za podnošenje i odobravanje TUE u sportu prema Pravilniku za odobravanje TUE koje izdaje WADA:

1. Kada ne postoji adekvatna zamena zabranjenoj supstanci ili metodi za lečenje određenog stanja;
2. Kada je zdravstveno stanje sportiste verifikovano validnom dokumentacijom i dijagnostikovano u skladu sa međunarodnim standarima;
3. Kada bi neuzimanje zabranjenih doping supstanci ili metoda tokom tretmana značajno pogoršalo zdravstveno stanje sportiste;
4. Kada neophodnost primene zabranjenih supstanci i/ili metoda nije u potpunosti ili delom posledica njihove prethodne neterapeutske primene;
5. Kada terapijska primena supstanci ili metoda neće doprineti poboljšanju takmičarskih spos. obnosti sportiste osim onih koje se očekuju nakon završetka lečenja.

Prema pravilniku WADA, sportista može da zatraži odobrenje TUE od nacionalne antidoping agencije (ukoliko se sportista takmiči samo na nacionalnom nivou), koja formira odbor za odobravanje terapijskih izuzetaka, a koji uvidom u medicinsku dokumentaciju sportiste može da dozvoli ili zabrani primenu odgovarajućeg leka za terapiju određene dijagnoze. Međutim, ukoliko se sportista takmiči na međunarodnim takmičenjima, TUE treba da odobri i međunarodna organizacija pod čijom se nadležnošću sportista takmiči (npr.: za fudbal UEFA ili FIFA, za košarku –

FIBA, za atletiku – IAAF i sl.), a nakon toga i TUE odbor velikih takmičenja poput Svetskih i Evropskih prvenstava i Olimpijskih igara. WADA ima pravo da preispita odluku kako nacionalnih, tako i internacionalnih TUE odbora, ukoliko ona ne odgovara standardima WADA, čime se donosi i konačna odluka u pogledu opravdanosti primene odgovarajućeg leka u terapijske svrhe, a koji se nalazi na listi doping pozitivnih supstanci.

Sportista mora da zatraži TUE pre takmičenja, i to u roku od 30 dana pre nego što će nastupiti.

Naravno, postoji i slučaj retroaktivnog traženja TUE, ali samo u slučaju upotrebe zabranjenih sredstava u terapijske svrhe u situacijama urgentnih stanja, iznenadnih povreda na samom takmičenju, kada npr. lekarski tim ima zadatak da sportistu što pre vrati na teren. U ove svrhe najčešće se koriste kortikosteroidi kao izuzetno potentni antiinflamatorni lekovi (Fitch, 2012). Prema Antidoping agenciji Srbije, „medicinsko stanje sportiste mora biti dijagnostikovano u skladu sa postojećim međunarodnim standardima i vodičima dobre lekarske prakse koje propisuje WADA, a koji su dostupni na njihovoj zvaničnoj internet stranici“ (WADA, 2021a).

Kako ne bi došlo do zloupotrebe lekova koji se nalaze na listi zabranjenih doping supstanci, WADA je napravila primer bolesti/medicinskih stanja koje se mogu tretirati lekovima i metodama koje su inače zabranjene, a ukoliko za primenu istih postoji opravdana medicinska dijagnoza. Njihova primena naravno zahteva odobrenje TUE od strane nadležnog odbora. U protivnom, sportista koji koristi neki od lekova sa liste zabranjenih doping supstanci u svrhu lečenja, a nema TUE odobrenje, rizikuje doping pozitivan rezultat na nekom od takmičenja tokom sezone (Tabela 1).

Tabela 1. *Lista bolesti/medicinskih stanja za koju postoji opravdana potreba za TUE i lekovi sa liste doping pozitivnih supstanci koji se mogu primenjivati u svrhu lečenja navedenih bolesti*

BOLEST / MEDICINSKO STANJE	Zabranjena supstanca za koju se traži TUE
povrede muskuloskeletnog sistema	glukokortikosteroidi i narkotici
astma	beta 2 agonisti, glukokortikosteroidi
diabetes mellitus	insulin
hronične inflamatorne bolesti creva	glukokortikoidi
hipogonadizam kod muškaraca	testosteron, hormon rasta
transplantacija bubrega	betablokatori, eritropoetin, glukokortikosteroidi
arterijska hipertenzija	diuretici, beta blokatori
poremećaj smanjenja pažnje	amfetamini, metilfendiat
narkolepsija i katepsija	psihostimulansi
nedostatak hormona rasta kod odraslih	hormon rasta, gonadotropin
nedostatak hormona rasta kod dece	rekombinantni hormon rasta

Izvor: Anđelković, 2016, str. 394.

CILJEVI STUDIJE

Pregledom literature definisati razloge za traženje TUE od strane sportista.

Pregledom literature istražiti postojanje potencijalne zloupotrebe TUE u svrhu postizanja boljih sportskih rezultata.

HIPOTEZE STUDIJE

H1: Sportisti traže odobrenje TUE za primenu lekova koji se nalaze na listi zabranjenih supstanci, a koji služe za lečenje sportskih povreda.

H2: Sportisti mogu zloupotrebiti TUE odobrenje u cilju poboljšanja sportskih sposobnosti, bez postojanja jasne medicinske dijagnoze, ili dijagnoze bez dovoljno medicinskih dokaza.

MATERIJAL I METODE

U pitanju je rad zasnovan na pregledu dostupne literature sa ciljem da se definišu razlozi traženja TUE od strane sportista i evaluiira potencijalna zloupotreba TUE metode u svrhu poboljšanja sportskih sposobnosti.

Za pretraživanje naučnih studija i radova, kao i internet članaka korišćeni su PubMed baza podataka, Kobson, kao i Google web pretraživač. Ključne reči korišćene za pretragu su: doping, sport, zabranjenje supstance, TUE, WADA.

REZULTATI

Prema podacima Antidoping agencije Republike Srbije (ADAS), srpski sportisti su od 2007. do 2015. godine tražili samo 200 TUE. Primera radi, nemačka Antidoping agencija godišnje obradi 4,500 zahteva za terapijsko izuzeće, što ukazuje na neprekidnu potrebu edukacije naših sportista, njihovih timova i lekara u pogledu postojanja i primene ove metode kako bi se sprečio neželjeni doping pozitivan rezultat (Anđelković, 2016).

Primera radi, postoji određeni broj nenamernih doping pozitivnih slučajeva srpskih sportista usled primene lekova sa liste zabranjenih supstanci u terapijske svrhe. Sportisti nisu bili svesni da su isti zabranjeni u sportu i da su doping pozitivan rezultat mogli da spreče traženjem TUE ili dobijanjem saveta u vezi eventualne promene leka i primene onog koji se ne nalazi na listi zabranjenih supstanci. Najčešći doping pozitivni slučajevi kod nas bili su vezani za primenu lekova protiv prehlade, a koji su u svom sastavu sadržali pseudoefedrin: Defrinol, Aspirin Complex, Rinasec, Caffetin Cold. Kod ostalih sportista zabeležena je npr. primena diuretika koji su prepisivani od strane lekara sa ciljem lečenja hipertenzije, koji su doveli do doping pozitivnih rezultata (Anđelković, 2016).

Od 200 TUE prijava, 66% se odnosilo na muškarce, dok je 33% prijava bilo od strane ženskih sportista. Košarka, fudbal, veslanje, rvanje i vaterpolo, bili su sportovi odakle su TUE prijave najčešće stizale. Mekotkivne povrede bile su najdominantniji razlog za traženje TUE odobrenja (17%). Dijagnoze astme i lumbalnog sindroma nalaze se na drugom i trećem mestu po broju prijava TUE sa učestalošću od 14% i 11% (Grafikon 1). Glukokortikoidi bili su najčešće primenjivani lekovi zbog kojih su sportisti morali da prijave TUE (preko 50% svih TUE prijava). Iz ove grupe lekova uglavnom su prepisivani betametazon, deksametazon i metilprednizolon sa ciljem lečenja inflamatornih mekotkivnih procesa, kao što su entezitisi, tendinitisi, fascitisi i burzitis. Na drugom mestu nalaze se beta 2 agonisti, kao što su salbutamol i formoterol, koji su primenjivani za lečenje astme (Anđelković, 2016; Dikić, 2006).

Grafikon 1. Procentualna zastupljenost medicinskih stanja za koje je traženo odobrenje TUE od strane sportista u Srbiji (2007-2015)

Izvor: Anđelković, 2016, str. 398.

Analiza prijava TUE u svetu

Dostupna statistika o prijavama TUE na svetskom nivou, a koju vodi WADA, ukazuje na činjenicu da su glukokortikoidi, kao i u Srbiji, najčešće primenjivani lekovi zbog kojih su sportisti i njihovi savezi tražili odobrenje TUE (WADA, 2021a). Razlog za primenu glukokortikoida su takođe povrede, odnosno zapaljenska stanja mišićno-skeletnog sistema. Za razliku od sportista u Srbiji, na svetskom nivou sportisti znatno više prijavljuju primenu stimulansa i traže TUE odobrenje. Dijagnoza zbog koje se stimulansi najčešće koriste je poremećaj pažnje, što nije zabeleženo kod naših sportista. Sa druge strane, primena beta 2 agonista znatno je ređa u svetskim sportskim okvirima nego u Srbiji (Grafikon 2).

Od ukupnog broja prijavljenih TUE svega 5% se odnosi na primenu beta 2 agonista, za razliku od 14% prijave zabeleženih u Srbiji. Dodatano, već ranije je rečeno, da je broj TUE prijave u Srbiji višestruko manji u poređenju sa ostalim evropskim i svetskim zemljama, i da jedna Nemačka na godišnjem nivou obradi i do 4500 TUE prijave. Takođe, WADA statistika ukazuje na činjenicu da je u pet sportova najčešće traženo TUE odobrenje: biciklizam, atletika, triatlon, plivanje i skijanje i da broj TUE prijave raste iz godine u godinu.

Grafikon 2. Procentualna zastupljenost lekova za čiju primenu je traženo TUE odobrenje na svetskom nivou (2017)

Izvor: Anđelković, 2016, str. 398.

(Zlo)upotreba lekova sa liste zabranjenih supstanci

Ranije je navedeno da je TUE tražen najčešće za primenu glukokortikoida, stimulanasa i beta 2 agonista. Brojni su primeri zloupotrebe ovih i drugih lekova sa liste zabranjenih supstanci od strane sportista sa ciljem postizanja što boljih sportskih rezultata.

Kako u Srbiji, tako i u svetu, glukokortikoidi su najčešće primenjivani lekovi u terapijske svrhe, a koji se nalaze na listi zabranjenih supstanci od strane WADA. Brojni su primeri sportista koji su prijavili TUE za primenu kortikosteroida. Serena Williams, američka teniserka, više puta je prijavila TUE zbog primene ovog leka zbog lečenja mišićno-skeletnih povreda (Tandon, 2018).

Takođe, i španski teniser, Rafael Nadal, u više navrata je primenjivao ovaj vid lečenja kako bi lečio hronični bol u predelu oba kolena (Tandon, 2016). Iako su gore navedeni sportisti imali odobren TUE za primenu kortikosteroida često se postavljalo pitanje medicinske opravdanosti primene ove vrste lekova u terapijske svrhe i njihove zloupotrebe u smislu što bržeg vraćanja sportiste u trenažni proces bez razmišljanja o potencijalnim štetnim efektima koje ova vrsta terapije može izazvati po zdravlje sportiste (Acevedo & Beskin, 1998; Pigozzi et al., 2012).

Najpoznatiji sportisti koji su bili doping pozitivni na stimulans amfetamin bili su biciklista Jan Ullrich, pobednik Tour de France trke 1997. godine (Richardson, 2004), kao i brazilski fudbaler Ricardo Lucas (FIFA, 2008)

i američki košarkaš Jordan Riley (USADA, 2021). Nekoliko sportista je bilo pozitivno na modafinil, stimulans koji se primenjuje u lečenju narkolepsije, i to na retestiranim uzorcima iz 2003. godine (ovaj lek se na WADA listi doping pozitivnih supstanci nalazi tek od 2004. godine), kada nije bila poznata upotreba ovog leka.

Navedeni sportisti nisu tražili TUE odobrenje za primenu ovih lekova u terapijske svrhe i stoga je namera sportista da se doppingu bila evidentna. Sa druge strane, postoji veliki broj sportista koji su zbog dijagnoze poremećaja pažnje ili poremećaja sna prijavili TUE kako bi u terapijske svrhe mogli da koriste stimulanse. Jedna od najpoznatijih gimnastičarki, Amerikanka Simon Biles, zbog dijagnoze poremećaja pažnje (eng. ADHD – *Attention Deficit Hyperactivity Disorder*) od detinjstva primenjuje stimulanse u svrhu lečenja navedene bolesti. Regularnost velikog broja zlatnih medalja koje je osvajala na svetskim prvenstvima i olimpijskim igrama dovedena je u pitanje zbog kontinuirane primene stimulansa.

Iako je na svakom takmičenju primena ovih lekova bila opravdana odobrenim TUE obrascem, gimnastičarka je više puta morala da pravda svoju dijagnozu i terapiju koju je uzimala radi lečenja iste (Crawford, 2016). Ostaje veliko pitanje da li su odobreni TUE obrasci bili medicinski opravdani ili se iza njih krila namera da se pod dejstvom stimulansa lakše dođe do medalja. Takođe, poznato je i da najpoznatiji američki plivač i višestruki osvajač olimpijskih medalja, Michael Phelps, takođe pati od ovog poremećaja i da je u terapijske svrhe primenjivao stimulanse. Dodatno, na Olimpijskim igrama u Brazilu, dve američke košarkašice (osvajalice zlatne medalje), takođe su imale odobren TUE za primenu stimulansa zbog dijagnoze ADHD (Crawford, 2016). Zbog uvida u ovakve literaturne podatke uvek se budi sumnja na potencijalnu zloupotrebu TUE metode i postavlja pitanje da li zaista dovoljno broj vrhunskih sportista pati od ove medicinske dijagnoze.

Što se tiče primene beta 2 agonista, odnosno bronhodilatatora za lečenje astme i drugih opstruktivnih bolesti pluća, takođe postoje brojni primeri TUE prijave. Poznata danska plivačica, Rikke Moller Pedersen, osvajačica olimpijskih medalja, u više navrata prijavila je TUE zbog primene leka terbutaline radi lečenja astme (LetsRun.com, 2016). Primer italijanskog bicikliste Alessandra Petacchia dovoljno govori o potencijalnoj zloupotrebi ove vrste lekova. Petacchi je zbog dijagnoze astme imao odobren TUE za primenu salbutamola, međutim, nivo ove supstance u njegovom urinu je bio za 320 mg/mL veći od dozvoljenih 1000 mg/mL (terapijska doza), pa je jasno da lek nije koristio samo u terapijskim dozama (Cycling weekly, 2008). Takođe, učestala je primena ovih lekova u sportovima izdržljivosti, kao što su veslanje, kajak i kanu (Fitch, 2016).

(Zl)upotreba drugih lekova koji se nalaze na listi zabranjenih supstanci, takođe je prisutna, ali u manjem procentu u odnosu na primenu glukokortikoida, stimulansa i beta 2 agonista.

Ovi rezultati potencijalno se mogu objasniti činjenicom da je za primenu drugih lekova poput anaboličkih steroida, hormona rasta, eritropoetina, diuretika i sl. mnogo teže dobiti TUE odobrenje i neophodna je kompleksna medicinska dokumentacija koja opravdava primenu ovih supstanci (Anđelković, 2016).

Na primer, na Olimpijskim igrama u Atini, 80% pozitivnih testova (bilo ih je ukupno 23, što je rekord do danas) je u nalazu imalo androgene (anaboličke steroide) i to testosteron, nandolon i stanozolol (Palmer, 2004). Olimpijski i svetski šampion Justin Gatlin je 2006. godine bio pozitivan na testosteron (Rumsby, 2017). Zanimljivo je da se hormon eritropoetin, tzv. EPO do skoro mogao otkriti samo analizom krvne plazme, a ne i analizom urina, pa je dugo godina korišćen u biciklizmu bez kažnjavanja, s obzirom na činjenicu da je najveći broj doping kontrola u prošlosti podrazumevao uzimanje uzorka urina sportiste. Tek kada su uspeali pokušaji da se EPO izoluje iz urina, WADA je počela da radi retestove tzv. B uzorka urina nekadašnjih šampiona Tour de France i Giro d'Italia.

DISKUSIJA

Rezultati ovog rada u najvećoj meri potvrđuju gore navedene hipoteze studije. Primena glukokortikoida u cilju lečenja sportskih povreda je najčešći uzrok zbog kojeg sportisti traže TUE odobrenje. Glukokortikoidi se najčešće primenjuju u vidu kortikosteroidnih injekcija koje su vrlo potentni anti-zapaljenski lekovi i koji dovode do efikasnog saniranja povrede i umanjavanja bola.

Već je rečeno da su mnogi vrhunski sportisti, poput Serene Williams, Rafaela Nadala i drugih, primenjivali ovaj vid lečenja i da su od strane novinara i javnog mnjenja često optuživani da su „na steroidima“ i da su njihovi uspesi rezultat doppinga (Shanet, 2010). Međutim, javno mnjenje vrlo često meša pojam glukokortikoida i anaboličkih steroida koji dokazano mogu unaprediti sportske sposobnosti u vidu povećanja mišićne mase, snage, brzine i izdržljivosti. Naime, glukokortikoidi nemaju jasno dokazano ergogeno dejstvo, ali se na listi zabranjenih supstanci

nalaze zbog njihove potencijalne nekritičke primene u terapijske svrhe, a koja može dovesti do zdravstvenih neželjenih efekata, kao i zbog potencijalnog euforičnog efekta koji izazivaju.

Dokazano je da učestala primena kortikosteroidnih injekcija sa ciljem lečenja zapaljenja tetiva i drugih mekotkivnih povreda može dovesti do slabljenja samog tkiva i njegove sledstvene rupture. Učestala i neadekvatna primena ove terapije (davanje injekcije direktno u tetivu) dovodi do slabljenja kolagenih vlakana tetive zbog čega tkivo postaje podložnije povredi koja može biti znatno ozbiljnija od one primarne (Pigozzi et al., 2012). Stoga, ukoliko se govori o zloupotrebi ovih supstanci u terapijske svrhe, onda se misli na nekritičku primenu ovih lekova od strane sportista i njihovih lekara koji za cilj imaju brz oporavak i povratak trenažnom procesu nakon povrede. Upravo su dominantni antizapaljenski i antiedematozni efekti ovih lekova razlog za najčešću prijavu TUE u svetu sporta.

Sa druge strane, nedovoljno opravdana dijagnoza astme predstavlja šansu za zloupotrebu lekova koji se primenjuju za lečenje ovog oboljenja. Već je pomenuto da je WADA odobrila primenu ovih lekova u terapijske svrhe, u tačno određenoj dozi za nekoliko beta agonista. S obzirom na činjenicu da su sportisti u prošlosti koristili dijagnozu astme kako bi u većim količinama primenjivali bronhodilatatore sa ciljem dilatacije, odnosno širenja disajnih puteva, povećanja plućnog kapaciteta, a samim tim i količine kiseonika koji se doprema do mišića kako bi se stvorilo što više energije za rad, WADA je uvela tačno propisane terapijske doze ovih lekova (Allen et al., 2019).

I pored propisane terapijske doze, mnogi sportisti su i dalje spremni da rizikuju doping pozitivan rezultat tako što uzimaju veće doze od onih potrebnih smatrajući da će ih TUE odobrenje za primenu leka zaštititi na potencijalnoj doping kontroli. Jedan od primera je biciklista Alessandro Petacchi u čijem uzorku urina je pronađena veća koncentracija leka od one dozvoljene (Cycling weekly, 2008). S obzirom na to da je primena beta 2 agonista dozvoljena samo u vidu inhalacije, a koncentracija inhaliranog bronhodilatatora u urinu može biti detektovana u kratkom periodu nakon upotrebe, onda je jasno zašto sportisti pokušavaju da zloupotrebe primenu ovog leka u cilju poboljšanja svojih sposobnosti (Deventer et al., 2012).

Moguća potencijalna zloupotreba TUE može se videti i na primeru primene stimulanasa u lečenju ADHD. Ukoliko se u obzir uzme činjenica da je uvidom u svetsku statistiku u pogledu TUE prijava jasno pokazano da je odobrenje TUE za primenu stimulanasa najčešće traženo posle glukokortikoida, onda se postavlja sumnja da li se ova bolest od strane sportista koristi kao paravan za zloupotrebu ovih lekova (Anđelković, 2016). Ukoliko se zna da stimulanasi, pored povećanja koncentracije deluju pozitivno i na sportske sposobnosti tako što produžavaju trajanje fizičke aktivnosti bez pada u intenzitetu rada, onda je jasan motiv sportista da ovaj lek koriste u cilju unapređenja svojih sposobnosti, a ne samo u terapijske svrhe. Brojni su primeri upravo američkih sportista koji „pate“ od ADHD i zbog toga primenjuju stimulanse u svojoj terapiji (Crawford, 2016).

Postavlja se pitanje da li ovi podaci ukazuju na potencijalnu sistemsku zloupotrebu ove bolesti i stimulanasa, pa samim tim i TUE metode? Ili je samo u pitanju razvijena zemlja koja poseduje odgovarajuće dijagnostičke i terapijske metode tretiranja ove bolesti, pa otuda i proističe veliki broj sportista sa ovom dijagnozom? Teško je dati odgovore na ova pitanja jer ne postoje naučno osnovani rezultati koji mogu potvrditi ili odbaciti navedene tvrdnje. U svakom slučaju, sumnja na zloupotrebu u izvesnoj meri može biti opravdana, naročito ukoliko se u obzir uzme činjenica da u Srbiji ne postoji ni jedna prijava TUE za ADHD dijagnozu godinama unazad i da evropske zemlje, za razliku od Amerike ne prednjače u traženju TUE odborenja za lečenje ADHD (Anđelković, 2016).

Zanimljiv podatak dolazi i sa Olimpijskih igara u Riju gde je SAD dominirala sa osvojenih 46 zlatnih, 37 srebrnih i 38 bronzanih, odnosno ukupno čak 121 medaljom. Mnogi su predviđali ovu dominaciju američkih sportista, naročito posle odluke WADA da zabrani učešće atletičarima Rusije na ovom takmičenju pod izgovorom o sistemskom doping. Međutim, uvid u dokumentaciju WADA sistema pokazao je da je više od polovine američkih sportista imalo odobren TUE za primenu određenih nedozvoljenih lekova (Redford, 2018).

Postavlja se logično pitanje da li je realno da je baš toliko profesionalnih sportista bolesno ili povređeno? Suština sigurno leži u činjenici da bez novih rekorda, rezultata i neverovatnih sportskih izvedbi, ne bi bilo ni interesa publike, a ni sponzora i televizija koji izdvajaju milijarde za televizijska prava i reklame. Vrlo često ta težnja prevazilazi metode dozvoljenog i „fair play“ odnosa. Jedan od najpoznatijih primera je i sistemski doping koji je sproveden na nivou Istočne Nemačke sa ciljem osvajanja što većeg broja medalja na velikim sportskim takmičenjima (Franke & Bedrendonk, 1997).

Nesumnjivo je da razvijene zemlje, velike evropske i svetske sile, razmišljaju i o uspehu svojih sportista, koji takođe predstavlja odraz moći jedne države, i da u tom pravcu teže da im obezbede podlogu za ostvarenje što boljih rezultata, mada je sve ovo i dalje u domenu teorija zavere koje nemaju naučnu osnovu.

ZAKLJUČAK

Prema WADA statistici, broj traženih TUE od strane sportista raste iz godine u godinu. Jedan od mogućih razloga ovih brojki može da leži u činjenici da raste i informisanost sportista, njihovih timova i sportskih radnika o postojanju i načinu primene ove metode.

Takođe, zahtevi današnjeg profesionalnog sporta su sve veći, tako da je i učestalost povređivanja sportista u porastu, a samim tim i primena odgovarajućih lekova sa liste zabranjenih supstanci, poput glukokortikoida. Sa druge strane, neosporna je činjenica da u sportu nije uvek sve „fair play“ i da TUE može predstavljati primer „legalne primene“ doping zabranjenih supstanci u svrhu poboljšanja sportskih rezultata, iako na prvom mestu WADA na ovaj način ipak omogućava poštovanje jednog od osnovnih ljudskih prava, a to je pravo na zdravlje sportiste

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Professional paper

THERAPEUTIC EXEMPTION IN SPORTS AND DRUG ABUSE AIMED AT IMPROVING SPORTS PERFORMANCE^{1 2}

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Abstract: Athletes, like ordinary people, have the right to get sick and be treated, but they are not allowed to use most of the drugs that are commonly prescribed to other people, because they are on the list of prohibited doping agents. Therefore, the World Anti-Doping Agency (WADA) has introduced the "Therapeutic Use Exemptions" (TUEs), which are submitted when there is an indication for the use of substances and methods that are on the list of prohibited substances. This "exemption" serves to relieve the athlete from the danger of being declared positive during or outside a competition. In recent years, permits for the therapeutic use of illicit drugs for treatment have been increasingly sought, and the aim of this paper is to investigate the causes of seeking TUEs, as well as whether there is abuse of TUEs in order to improve athletic ability and results. Descriptive method and theoretical analysis were used for the collection, classification and analysis of the targeted research, and the data used for the research was collected with the help of Google Scholar, PubMed and KoBSON search engines. Treatment of sports injuries is the most common cause for which athletes seek TUE approval. The second on this list are stimulants, which are used for the treatment of the attention deficit hyperactivity disorder (ADHD) in athletes, while the third place is occupied by beta blockers for the chronic obstructive pulmonary disease.

Keywords: *doping, therapeutic exemption, glucocorticoids, stimulants, beta blockers*

INTRODUCTION

Doping in sports, in simple terms, represents any application of substances or methods that are prohibited, which leads to the improvement of the athlete's results. According to the WADA definition, some of the violations

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of anti-doping rules are the following: presence of prohibited substances or their metabolites, or metabolites in the body sample of athletes; use or willingness to use prohibited methods; possession of illicit substances or methods, as well as the sale and distribution of illicit substances; prescribing a prohibited substance to any athlete as well as assisting in doping, encouraging, aiding, abetting or any other type of anti-doping rule violation (WADA, 2021b).

The first synthetic testosterone was created in the 1930s. However, it is believed that a serious fight against doping began only after the tragic events that occurred on the sports fields. The first recorded tragic event occurred in 1960 at the Olympic Games in Rome, when an athlete died on the field due to the use of amphetamines. It was followed by an accident at the Tour de France cycling competition in 1967, when one of the competitors died during the race.

The above facts were just one of the reasons for the International Olympic Committee (IOC) to adopt the first anti-doping rules in 1967 and form a medical commission to implement them. These were the beginnings of the fight against doping, which was not too successful since during the 1970s, many Eastern Bloc countries systematically used doping for their athletes, with East Germany in the lead (Franke & Bedrendonk, 1997). The problem increased from decade to decade, and it was not until 1999 that the World Anti-Doping Agency was formed, which started a serious and extensive fight against doping in sports.

THEORETICAL APPROACH TO RESEARCH

Definition and application of TUE in sports

The question is what happens when athletes get sick, injured or have a chronic illness that requires certain therapy? Athletes, like other people, have the right to get sick and be treated, but what sets them apart is that they are not allowed to use drugs that are on the anti-doping list without prior permission.

Treatment with drugs that are on the list of banned substances is not justified sometimes. The request for "Exemption for Therapeutic Use in Sports" is submitted when there is an indication for the use of substances and methods that are on the list of prohibited drugs, and serves to relieve the athlete from the danger of being declared doping positive during or outside a competition (Gerrard & Pipe, 2017).

All athletes are entitled to a TUE, but there are clear indications for its approval. When an athlete becomes ill or injured and therefore has to take certain drugs that are on the list of prohibited substances, the athlete's doctor must first submit a request to the commission of the competent anti-doping agency for approval of a TUE. There is a large number of drugs that are used to treat appropriate diseases and which, if used in a healthy athlete, can serve as a means to improve athletic ability. Most often, such drugs are testosterone, insulin, diuretics, beta 2 agonists, psychostimulants, glucocorticosteroids and the growth hormone. It is obvious that the therapeutic effects of these drugs are often abused by athletes, first in the form of a faster recovery from injury or illness, and also for the purpose of improving their abilities. Therefore, there are appropriate criteria for submitting and approving TUEs in sport according to the Ordinance for Approving TUEs that was issued by the WADA:

1. There is no adequate substitution for a prohibited substance or method used for treatment of a particular condition;
2. The athlete's health condition is verified by valid documentation and is diagnosed in accordance with international standards;
3. Not taking prohibited doping substances or methods during treatment would significantly worsen the health condition of the athlete;
4. The necessity of the use of prohibited substances and/or methods is not entirely or partially a consequence of their previous non-therapeutic use;
5. The therapeutic use of substances or methods will not contribute to the improvement of the athlete's competitive abilities other than those expected after the end of treatment.

According to the WADA regulations, an athlete may request the approval of a TUE from a national anti-doping agency (if the athlete competes only at the national level), which forms a committee for granting therapeutic exemptions that may allow or prohibit the use of appropriate drugs for therapy or diagnosis. However, if the athlete competes in international competitions, the TUE should be approved by the international organization under whose jurisdiction the athlete competes (e.g.: in football – UEFA or FIFA, in basketball – FIBA, in athletics – IAAF, etc.) and the TUE board of major competitions such as the World and European Championships and the Olympic Games. The WADA has the right to review the decisions of both national and international TUE committees, and

establish whether they meet the WADA standards. The WADA makes the final decision regarding the justification of the use of the appropriate drug for therapeutic purposes when it is on the list of doping-positive substances.

An athlete must request a TUE before a competition, within 30 days before performing.

Of course, there is also a case of a retroactive request for a TUE, but only in the case of the use of prohibited means for therapeutic purposes in situations of emergency and sudden injuries at a competition, e. g. when the medical team is tasked with returning the athlete to the field as soon as possible. For these purposes, corticosteroids are most often used as extremely potent anti-inflammatory drugs (Fitch, 2012). According to the Anti-Doping Agency of Serbia, “an athlete's medical condition must be diagnosed in accordance with the existing international standards and good medical practice guidelines prescribed by the WADA, which are available on their official website” (WADA, 2021a).

In order to prevent the misuse of drugs that are on the list of banned doping substances, the WADA offers an example of diseases/medical conditions that can be treated with drugs and methods that are otherwise prohibited, including whether their use in such cases is justified by medical diagnosis. Of course, their implementation requires the approval of the TUE by the competent committee. Otherwise, an athlete who uses some of the drugs for treatment that is on the list of prohibited doping substances, without a TUE approval, risks getting a doping-positive result in one of the competitions during the season (Table 1).

Table 1. *List of diseases/medical conditions for which there is a justified need for a TUE and drugs from the list of doping-positive substances that can be used to treat these diseases*

DISEASE / MEDICAL CONDITION	Prohibited substance for which a TUE is required
musculoskeletal system injuries	glucocorticosteroids and narcotics
asthma	beta-2 agonists, glucocorticosteroids
diabetes mellitus	insulin
chronic inflammatory bowel disease	glucocorticoids
hypogonadism in men	testosterone, growth hormone
kidney transplantation	beta blockers, erythropoietin, glucocorticosteroids
arterial hypertension	diuretics, beta blockers
attention deficit disorder	amphetamines, methylfendate
narcolepsy and catalepsy	psychostimulants
growth hormone deficiency in adults	growth hormone, gonadotropin
growth hormone deficiency in children	recombinant growth hormone

Source: Anđelković, 2016, p. 394

STUDY OBJECTIVES

To review the literature in order to define the reasons for seeking TUEs by athletes.

To review the literature in order to examine the existence of potential abuse of TUEs for the purpose of achieving better sports results.

STUDY HYPOTHESES

H1: Athletes seek TUE approval for usage of drugs that are on the list of banned substances and which are intended for the treatment of sports injuries.

H2: Athletes may abuse TUE approval in order to improve athletic ability, without a clear medical diagnosis or with diagnosis lacking sufficient medical evidence.

MATERIAL AND METHODS

The paper is based on a review of the available literature with the aim to define the reasons for seeking TUEs by athletes and to evaluate the potential abuse of the TUE method for the purpose of improving athletic ability.

PubMed's database, KoBSON, and the Google search engine were used to search for scientific studies and papers, as well as Internet articles. Keywords used for the search were: doping, sports, substance ban, TUE, WADA.

RESULTS

According to the data from the Anti-Doping Agency of the Republic of Serbia (ADAS), Serbian athletes requested only 200 TUEs between 2007 and 2015. For example, the German Anti-Doping Agency processes 4,500 of these requests annually, which indicates the constant need to educate our athletes, their teams and their doctors about the existence and implementation of this method in order to prevent unwanted doping positive results (Anđelković, 2016).

For example, there is a number of unintentional doping-positive cases of Serbian athletes due to the use of drugs for therapeutic purposes, which are on the list of banned substances. Athletes were not aware that these drugs were banned in sports and that they could have prevented a positive doping result by seeking a TUE or by getting advice regarding a possible change in the drug, using instead a drug that is not on the list of banned substances. The most common doping-positive cases in our country were related to the use of cold medicines, which contained pseudoephedrine: Defrinol, Aspirin Complex, Rinasec, Caffetin Cold. In other athletes, for example, the usage of diuretics prescribed by doctors for the treatment of hypertension has been reported to have led to doping-positive results (Anđelković, 2016).

Of the 200 TUE applications, 66% were submitted by men, while 33% of applications came from female athletes. TUE applications were most often related to basketball, football, rowing, wrestling and water polo. Soft tissue injuries were the most dominant reason for seeking a TUE approval (17%). Diagnoses of asthma and the lumbar syndrome hold the second and the third place in terms of the number of TUE applications with a frequency of 14% and 11%, respectively (Graph 1). Glucocorticoids were the most commonly used drugs due to which athletes had to file a TUE application (over 50% of all TUE reports). Betamethasone, dexamethasone and methylprednisolone were most often prescribed within this group of drugs for the treatment of inflammatory soft tissue processes, such as enthesitis, tendinitis, fasciitis and bursitis. The second place is occupied by beta 2 agonists, such as salbutamol and formoterol, which are used to treat asthma (Anđelković, 2016; Dikić, 2006).

Graph 1. Representation of medical conditions (in percentages) for which TUE approval was requested by athletes in Serbia (2007-2015)

Source: Anđelković, 2016, p. 398

Analysis of TUE applications worldwide

The available statistics on the WADA reports worldwide, maintained by the WADA, indicate that glucocorticoids – just like in Serbia – are the most commonly used drugs for which athletes and their federations have sought TUE approvals (WADA, 2021a). The reason for the use of glucocorticoids are also injuries, i.e. inflammatory conditions of the musculoskeletal system. Unlike athletes in Serbia, at the global level athletes report the use of stimulants much more often and ask for TUE approvals. The diagnosis due to which stimulants are most often used is attention deficit disorder, which has not been noticed among Serbian athletes. On the other hand, the use of beta 2 agonists in world sports is much less frequent than in Serbia (Graph 2).

Of the total number of reported TUEs, only 5% relate to the use of beta 2 agonists, in contrast to 14% of cases reported in Serbia. Additionally, it was said earlier that the number of TUE applications in Serbia is significantly smaller than in other European countries and the rest of the world, and that Germany processes up to 4,500 TUE applications annually. Also, the WADA statistics point to the fact that TUE approvals are most often requested in five different sports: cycling, athletics, triathlon, swimming and skiing, and that the number of TUE applications is growing each year.

Graph 2. *Percentage of drugs that require TUE approval worldwide (2017)*

Source: Anđelković, 2016, p. 398

Use or abuse of drugs from list of banned substances

It was previously stated that TUEs are most often required for the use of glucocorticoids, stimulants and beta 2 agonists. There are numerous examples of abuse of these and other drugs from the list of banned substances by athletes to achieve the best possible athletic results.

Both in Serbia and globally, glucocorticoids are the most commonly used drugs for therapeutic purposes which are on the list of banned substances by the WADA. There are numerous examples of athletes who have reported a TUE for corticosteroid use. American tennis player Serena Williams has repeatedly reported TUEs due to the use of this drug for the treatment of musculoskeletal injuries (Tandon, 2018).

Also, Spanish tennis player Rafael Nadal, has repeatedly used this type of treatment to treat chronic pain in both knees (Tandon, 2016). Although the above athletes had received approval of TUEs for the use of corticosteroids, the question of medical justification for the use of this type of drugs as therapy and their abuse has often been raised in terms of returning the athlete to the training process as soon as possible without thinking about the potential harmful effects of this type of therapy (Acevedo & Beskin, 1998; Pigozzi et al., 2012).

The most famous athletes who were doping-positive for the amphetamine stimulant were cyclist Jan Ullrich, winner of the Tour de France race in 1997 (Richardson, 2004), Brazilian footballer Ricardo Lucas (FIFA, 2008) and American basketball player Jordan Riley (USADA, 2021). Several athletes tested positive for modafinil, a

stimulant used for treatment of narcolepsy, on retested samples from 2003 (this drug has been on the WADA list of doping-positive substances only since 2004), when the use of this drug was not known.

These athletes did not seek a TUE approval for the use of these drugs for therapeutic purposes and therefore the intention of the athletes to use them as doping was evident. On the other hand, there is a large number of athletes who have reported TUEs due to a diagnosis of attention deficit disorder or sleep disorder so that they can use stimulants for therapeutic purposes. One of the most famous American gymnasts, Simone Biles, has been using stimulants for the treatment of this disease since childhood due to the diagnosis of attention deficit hyperactivity disorder (ADHD). As a result of the continuous application of stimulants, the regularity of the large number of gold medals she won at world championships and the Olympic Games has been called into question.

Although the use of these drugs in every competition was justified by the approved TUEs, the gymnast repeatedly had to justify her diagnosis and the therapy she was taking for treatment (Crawford, 2016). The big question remains whether the approved TUEs were medically justified or whether there was an intention behind them to use the drugs as stimuli to win medals more easily. It is also known that the most famous American swimmer and multiple Olympic medal winner, Michael Phelps, also suffers from this disorder and that he used stimulants for therapeutic purposes. Additionally, at the Olympic Games in Brazil, two American basketball players (gold medal winners) also had a TUE approved for the use of stimulants due to the ADHD diagnosis (Crawford, 2016). After reviewing such data from the literature, there is always a suspicion of potential abuse of the TUE method and the question arises whether such a large number of top athletes really suffer from this medical diagnosis.

Regarding the use of beta-2 agonists, i.e. bronchodilators for the treatment of asthma and other obstructive pulmonary diseases, there are also numerous examples of TUE applications. Famous Danish swimmer, Rikke Møller Pedersen, winner of Olympic medals, has repeatedly reported TUEs due to the use of the drug terbutaline for treatment of asthma (LetsRun.com, 2016). The case of the Italian cyclist Alessandro Petacchi speaks volumes about the potential abuse of this type of medicine. Thanks to the diagnosis of asthma, Petacchi had an approved TUE for the use of salbutamol, however, the level of this substance in his urine was 320 mg/ml higher than the allowed 1000 mg/mL (therapeutic dose), so it is clear that the drug was not used only in therapeutic doses (Cycling weekly, 2008). Also, the use of these drugs in endurance sports, such as rowing, kayaking and canoeing, has become more frequent (Fitch, 2016).

The abuse or use of other drugs that are on the list of banned substances is also evident, but in a smaller percentage than the use of glucocorticoids, stimulants and beta 2 agonists.

These results can potentially be explained by the fact that for the use of other drugs such as anabolic steroids, the growth hormone, erythropoietin, diuretics and the like it is much more difficult to obtain a TUE approval and complex medical documentation is necessary to justify the use of these substances (Anđelković, 2016).

For example, at the Olympic Games in Athens, 80% of positive tests (there were 23 in total, which is a record to date) had androgens (anabolic steroids) in the findings, namely testosterone, nandrolone and stanozolol (Palmer, 2004). Olympic and world champion Justin Gatlin tested positive for testosterone in 2006 (Rumsby, 2017). Interestingly, hormone erythropoietin (EPO), until recently, could only be detected by blood plasma analysis and not by urine analysis, so it has been used for many years in cycling without punishment, given the fact that most doping controls in the past involved sampling an athlete's urine.

Only when the attempts to isolate EPO from urine succeeded, did the WADA start conducting retests of the so called B urine samples of former Tour de France and Giro d'Italia champions.

DISCUSSION

The results of this paper largely confirm the above hypotheses of the study. The use of glucocorticoids for the treatment of sports injuries is the most common reason why athletes seek TUE approvals. Glucocorticoids are most frequently used in the form of corticosteroid injections, which are very potent anti-inflammatory drugs and which lead to effective healing of injuries and reduction of pain.

It has already been said that many top athletes, such as Serena Williams, Rafael Nadal and others, have used this type of treatment and that journalists and the public opinion have often accused them of being "on steroids" and that their success is the result of doping (Shanet, 2010). However, public opinion very often confuses the concept of glucocorticoids and anabolic steroids, which have been proven to improve sports abilities in the form of increasing muscle mass, strength, speed and endurance. Namely, glucocorticoids do not have a clearly proven ergogenic

effect, but they are on the list of banned substances due to their potential uncritical use for therapeutic purposes, which can lead to health side effects, as well as the potential euphoric effect that they cause.

It has been proven that frequent use of corticosteroid injections with the aim of treating tendon inflammation and other soft tissue injuries can result in weakening of the tissue itself and its consequent rupture. Frequent and inadequate application of this therapy (giving injections directly into the tendon) leads to the weakening of the collagen fibers of the tendon, due to which the tissue becomes more susceptible to injury, which can be much more serious than the primary one (Pigozzi et al., 2012). Therefore, if we talk about the abuse of these substances for therapeutic purposes, by this we mean the uncritical use of these drugs by athletes and their doctors with the aim to achieve a quick recovery and return to the training process after injury. The dominant anti-inflammatory and anti-edematous effects of these drugs are the reason for the most common application of TUEs in the world of sports.

On the other hand, an insufficiently justified diagnosis of asthma represents a chance for the abuse of drugs that are used to treat this disease. It was mentioned that the WADA approved the use of these drugs for therapeutic purposes in a precisely specified dose for several beta agonists. As a result of the fact that in the past athletes exploited the diagnosis of asthma to allow them to use larger amounts of bronchodilators to dilate, i.e. expand the airways, increasing lung capacity, and thus the amount of oxygen delivered to the muscles to create more energy for work, the WADA has introduced precisely prescribed therapeutic doses of these drugs (Allen et al., 2019).

Despite the prescribed therapeutic dose, many athletes are still willing to risk a positive doping result by taking higher doses than necessary, believing that the TUE approval for the use of the drug will protect them from a potential doping control. One example is that of a cyclist Alessandro Petacchi, whose urine sample exhibited a higher concentration of the drug than allowed (Cycling weekly, 2008). Since the use of beta 2 agonists is allowed only in the form of inhalation, and the concentration of the inhaled bronchodilator in the urine can be detected shortly after use, it is clear why athletes try to abuse the use of this drug to improve their abilities (Deventer et al., 2012).

The possible potential abuse of TUEs can be seen in the example of the use of stimulants for the treatment of ADHD. If we take into account the fact that the review of world statistics regarding TUE applications clearly shows that the TUE approval for stimulants is most often sought for glucocorticoids, we should ask a question whether this disease is used by athletes as a cover for the abuse of these drugs (Anđelković, 2016). If it is known that stimulants, in addition to increasing concentration, have a positive effect on sports abilities by prolonging the duration of physical activity without decreasing the intensity of work, then there is a clear motive for athletes to use this drug to improve their abilities and not only for therapeutic purposes. There are numerous examples of American athletes who "suffer" from ADHD and therefore use stimulants in their therapy (Crawford, 2016).

The question is – does this data indicate a potential systemic abuse of this disease and stimulants, and therefore the TUE methods? Or is it just a case of a developed country that possesses appropriate diagnostic and therapeutic methods of treating this disease, which is where a large number of athletes with this diagnosis come from? It is difficult to give answers to these questions because there are no scientifically based results that can confirm or refute the stated claims. In any case, the suspicion of abuse can be justified to some extent, especially if we take into account the fact that in Serbia there have been no TUE applications for the ADHD diagnosis for years and that European countries, unlike America, are not in the lead in seeking TUE approvals for the treatment of ADHD (Anđelković, 2016).

An interesting fact also comes from the Olympic Games in Rio, where the USA dominated with 46 gold, 37 silver and 38 bronze medals, a total of 121 medals. Many predicted this dominance of American athletes, especially after the decision of the WADA to ban the participation of Russian athletes in this competition under the pretext of systemic doping. However, an insight into the documentation of the WADA system showed that more than a half of American athletes had an approved TUE for the use of certain illicit drugs (Redford, 2018).

The logical question that comes to mind is – how realistic is it that so many professional athletes are sick or injured? What is certainly most important is the fact that without new records, results and incredible sports performances, there would be no interest of the audience or sponsors and televisions that set aside billions for television rights and commercials. Very often this aspiration goes beyond the allowed methods and "fair play". One of the most famous examples is the systemic doping which was conducted in East Germany with the aim of winning as many medals as possible at major sports competitions (Franke & Bedrendonk, 1997).

There is no doubt that developed countries, great European and global powers, consider the success of their athletes, which is also a reflection of the power of a country, and for this reason they seek to provide them with a basis for better results, although all this is still in the domain of conspiracy theories for which there is no scientific basis.

CONCLUSION

According to the WADA statistics, the number of TUEs required by athletes is growing every year. One of the possible reasons for these figures may be the fact that athletes, their teams and sports professionals are becoming more aware of the existence and the manner of the application of this method.

Also, the demands of today's professional sports are increasing, causing the frequency of injuries in athletes to increase, consequently increasing the use of appropriate drugs from the list of banned substances, such as glucocorticoids. On the other hand, it is an indisputable fact that not everything in sports is always "fair play" and that TUEs can be an example of a "legal use" of doping and banned substances with the aim to improve sports results, although, predominantly, the WADA in this way allows respect for one of basic human rights, and that is the right to the health of an athlete.

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