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TEHNOLOGIJE ASISTIRANE REPRODUKCIJE U CENTRIMA ZA BIOMEDICINSKI POTPOMOĢNUTU OPLODNJU U PLANU MREŽE I VAN PLANA MREŽE U REPUBLICI SRBIJI I NJIHOVO FINANSIRANJE

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Sažetak: **UVOD:** Tehnologije asistirane reprodukcije su tehnologije koje se danas primenjuju, prilikom lečenja neplodnosti, na humanim polnim ćelijama (oocitama i spermatozoidima) i embrionima. Trenutno u Republici Srbiji postoje različiti postupci tehnologija asistirane reprodukcije koji se upotrebljavaju za lečenje neplodnosti kod pacijenata u zavisnosti od medicinskih indikacija. Dostupost tehnologija asistirane reprodukcije se ravija tokom godina, a njihova primena se razlikuje u centrima za biomedicinski potpomognutu oplodnju (u daljem tekstu - BMPO) koje su u Planu mreže (državne ustanove) i van Plana mreže (privatne ustanove). **CILJ:** Analiza dostupnih tehnologija asistirane reprodukcije u Centrima za BMPO u Planu mreže i van Plana mreže koje su regulisane Zakonom o lečenju neplodnosti postupcima biomedicinski potpomognutog oplođenja („Sl. Glasnik RS“, br.72/2009), njihovom finansiranju i dostupnosti pacijentima u Republici Srbiji. **METOD:** Pretraživanja dokumenata putem interneta i na osnovu analizirane literature dostupne na internetu. **REZULTATI** su dobijeni analizom zvaničnih sajtova centara za BMPO i analizom dostupnih eksternih sekundarnih podataka Republičkog fonda za zdravstveno osiguranje i Instituta za javno zdravlje Srbije „Dr Milan Jovanović Batut“. Centri za BMPO u Republici Srbiji raspolažu sa svim važnijim tehnologijama asistirane reprodukcije. Tehnologije asistirane reprodukcije koje se finansiraju od strane Republičkog fonda za zdravstveno osiguranje su oplodnja in vitro, intacitoplazmatska injekcija spermatozoida i transfer zamrznutih embriona. Pacijenti čije medicinske indikacije zahtevaju neku od drugih tehnologija mogu njima da pristupe u centrima za BMPO koje su van Plana mreže o svom trošku. **ZAKLJUČAK:** Na osnovu dostupnih i analiziranih podataka možemo zaključiti da centri za BMPO u Republici Srbiji raspolažu sa svim važnijim tehnologijama asistirane reprodukcije. Centri za BMPO u Planu mreže mogu da upotrebljavaju samo tehnologije koje mogu biti finansirane i fakturisane od strane RFZO. **Ključne reči:** Neplodnost, Centri za biomedicinski potpomognutu oplodnju/Srbija, Tehnologije asistirane reprodukcije, fertilizacija in vitro, transfer zamrznutih embriona, preimplantaciona genetska dijagnostika

UVOD

Tehnologije asistirane reprodukcije su tehnologije koje se danas primenjuju, prilikom lečenja neplodnosti, na humanim polnim ćelijama i embrionima. Trenutno u Republici Srbiji postoje različiti postupci tehnologija asistirane reprodukcije koji se upotrebljavaju za lečenje neplodnosti kod pacijenata u zavisnosti od medicinskih indikacija. Dostupost tehnologija asistirane reprodukcije se razvija tokom godina, a njihova primena se razlikuje u centrima za biomedicinski potpomognutu oplodnju koje su u Planu mreže (državne ustanove) i van Plana mreže (privatne ustanove). Tehnologije asistirane reprodukcije (assisted reproductive technology – u daljem tekstu ART) predstavljaju grupu

najsavremenijih terapijskih postupaka za lečenje neplodnosti [1].

Tehnologije asistirane reprodukcije

Tehnologije asistirane reprodukcije se odnose na sve tehnologije sa kojima se manipuliše gametima izvan tela. Najčešće korištene su oplodnja in vitro (IVF) i intracitoplazmatska injekcija spermatozoida (ICSI). Ne uključuju tehniku kao što je intrauterine inseminacija (IUI) u kojoj se manipuliše samo sa muškim gametima [2]. Razvile su se i inovativne tehnologije koje povećavaju uspeh. Neke od njih su in vitro maturacija (IVM), preimplantaciona genetska dijagnostika (PGD), donacija spermatozoida i oocita (SD,OD) [3], tehnika transfera zamrznutih embriona (FET), asistirani hečing ili potpomognuto izleganje embriona (AH).

ASSISTED REPRODUCTIVE TECHNOLOGIES IN CENTERS FOR BIOMEDICAL ASSISTED FERTILIZATION WITHIN AND OUTSIDE THE NETWORK PLANS IN THE REPUBLIC OF SERBIA AND THEIR FINANCING

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ABSTRACT: INTRODUCTION: Assisted reproduction technologies (ART) are technologies that are used today, in the treatment of infertility, on human germ cells (oocytes and sperm) and embryos. Currently in the Republic of Serbia, there are various procedures of assisted reproduction technologies that are used to treat infertility in patients depending on medical indications. The availability of assisted reproduction technologies has been evolving over the years, and their application differs in biomedically assisted fertilization centers that are in the Network Plan (state institutions) and outside the Network Plan (private institutions). The aim of this article is to analyze available ART methods in Fertility centers within and outside the Network plan regulated by the Law on the Treatment of Infertility Procedures of Biomedical Assisted Fertilization (Official Gazette of the Republic of Serbia”, No. 72/2009), their financing and availability to patients in the Republic of Serbia. **METHOD:** This article is assembled upon seeking documents using the Internet and based on analyzed literature available on the Internet. **RESULTS:** The results were gathered by analyzing official ART centers’ websites and analyzing available external secondary data from the National health insurance fund and the Institute for public health “Dr Milan Jovanovic Batut”. Fertility clinics in the Republic of Serbia have access to all the important technologies for ART. ART technologies funded by National health insurance fund include in vitro fertilization, intracytoplasmic sperm injection and frozen embryo transfer. Patients whose medical indications require for some other technology may approach Fertility Centers outside the Network plan on their own budget. **CONCLUSION:** Based on the available and updated data we can conclude that Fertility centers in the Republic of Serbia have access to all the important technologies for ART. Fertility centers within the Network plan can implement only the technologies financed and invoiced by the Fund. **KEY WORDS:** infertility, biomedical assisted fertilization centers/Srbija, Assisted reproduction technologies, Fertilization in vitro, frozen embryo transfer, preimplantation genetic diagnosis.

INTRODUCTION

Assisted reproduction technologies are technologies that are applied today, in the treatment of infertility, on human germ cells and embryos. Currently in the Republic of Serbia, there are various procedures of assisted reproduction technologies that are used to treat infertility in patients depending on medical indications. The availability of assisted reproduction technologies has evolved over the years, and their application differs in biomedically assisted fertilization centers that are in the Network Plan (state institutions) and outside the Network Plan (private institutions). Assisted reproductive technology (ART) is a group of state-of-the-art therapeutic procedures for the treatment of infertility [1].

Assisted reproductive technologies

ART refers to all technologies used to manipulate gametes outside of the human body.

Those most commonly used are in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI). They do not include technologies such as intrauterine insemination (IUI) that manipulates only male gametes [2]. Innovative technologies that increase the success rate have also been developed. Some of them are in vitro maturation (IVM), preimplantation genetic diagnosis (PGD), sperm and oocyte donation (SD, OD) [3], frozen embryo transfer (FET) procedure and assisted hatching (AH).

Medical indications for different assisted reproductive technologies

In vitro fertilization (IVF) is an assisted reproductive technology that may be applied only to patients whose spermogramme shows normospermia. Cultivated sample is then laid among the egg cells and fertilization occurs alone. Medical indications for IVF require for the male patient’s sample to show normospermia [4], and

Medicinske indikacije za različite tehnike asistirane reprodukcije

Oplodnja in vitro (In vitro fertilizacija – IVF) je asistirana reproduktivna tehnologija koja može da se primeni samo kod pacijenata čiji je nalaz spermograma normospermija. Tada se obrađen uzorak spermatozoida spušta među jajne ćelije, oplodnja se odvija sama. Medicinska indikacija za IVF jeste da kod muškog partnera uzorak mora biti normospermija [4], a indikacije kod ženskog partnera su zapušeni jajovodi, problem sa ovulacijom, endometrioza [5] i genetske bolesti koje rezultuju pobačajem [2].

Intracitoplazmatska injekcija spermatozoida (Intracytoplasmic sperm injection – ICSI) je tehnologija mikromanipulacije kada se jedan spermatozoid ubrizga u citoplazmu jajne ćelije te se na taj način vrši oplodnja. Medicinska indikacija za ICSI su, u većini slučajeva, vezane za muški sterilitet kao i kod pacijenata koji nisu imali oplodnju prilikom korišćenja IVF [5]. Muški sterilitet obuhvata oligospermiju, astenospermiju, teratospermiju, obstruktivna i neopstruktivna azospermija. Tada se spermatozoidi dobijaju hirurškim putem (PESA- aspiracija spermatozoida iz epididimisa, TESA/TESE- aspiracija/ekstrakcija spermatozoida iz testisa). U slučaju prisutnosti antispermatozoidnih antitela kod oba partnera radi se metoda ICSI, takodje i nakon odmrzavanja zamrznutih uzoraka semena primenjuje se metoda mikrofertilizacije [2].

Transfer zamrznutih embriona (Frozen embryo transfer - FET) je transfer embriona koji su dobijeni u jednom od prethodnih postupaka klasičnom IVF ili ICSI metodom. Potom su zamrznuti procesom vitifikacije. U postupku FET-a embrioni se odmrzavaju i vraćaju u prethodno pripremljenu matericu. Prednost FET je to što se višak embriona iz postupka IVF zamrzava i nakon toga se u sukcesivnim ciklusima vrši njihov transfer, čime se postiže visoka kumulativna stopa procedure vantelesne oplodnje [6].

In vitro maturacija (In vitro maturation – IVM) je ciklus u kome se sakupljaju jajne ćelije iz antralnih folikula kod nestimuliranih jajnika, ili se vrši blaga stimulacija. Nezrele jajne ćelije se sakupljaju i poslednja faza njihovog sazrevanja se odvija u laboratoriji. Medicinske indikacije za IVM cikluse su pacijenti koji imaju sindrom policističnih ovarijuma (PCOS) kod kojih postoji rizik sindroma hiperstimulacije jajnika (OHSS-ovarian hyperstimulation syndrom) [7]. Kod pacijenata sa estrogen zavisnim karcinomima

(onkološki pacijenti) izbegavaju se stimulisani ciklusi sa standardnim protokolima stimulacije ovulacije jer stimulišu rast folikula i podstiču proizvod-nju estrogena. Tada se jajne ćelije sakupljaju iz antralnih folikula nestimuliranih jajnika. Preimplantaciona genetska dijagnostika (Preimplantation genetic diagnosis – PGD) je tehnologija mikromanipulacije u kojoj se radi biopsija nekoliko ćelija embriona starog 5 ili 6 dana, nakon čega se uradi analiza genetskog materijala biopsiranih ćelija. Medicinska indikacija za PGD su pacijenti kod kojih postoji velika verovatnoća prenošenja naslednih bolesti na dete, kod pacijenata sa ponovljenim spontanom pobačajima i kod pacijenata iznad 38 godina kod kojih postoji rizik od aneuploidija.

Asistirani hečing (Assisted hatching – AH) je tehnologija mikromanipulacije kojom se buši zona pelucida na embrionu kako bi se olakšalo njegovo oslobađanje čime se povećava implantacija, a time i procenat za trudnoću. Medicinske indikacije su više neuspelih pokušaja vantelesne oplodnje kao i više neuspelih transfera zamrznutih embriona. Ciklusi sa zamrzavanjem oocita (Frozen oocyte replacement - FORs) [8] su ciklusi u kome su upotrebljene zamrznute jajne ćelije (Oocyte cryopreservation – OoC) [9]. Donacija oocita(OD) predstavlja inseminiranje jajne ćelije donorke sa spermatozoidima muškog partnera. Dete je genetski od muškog partnera. Medicinske indikacije za donaciju oocita su prevremena insuficijencija jajnika (POF), loš kvalitet jajnih ćelija i onkološki lečeni pacijenti. Donacija spermatozoida (SD) predstavlja inseminiranje jajne ćelije ženskog partnera sa spermatozoidima donora. Medicinske indikacije za donaciju spermatozoida su azospermija, druge abnormalnosti sperme.

Finansiranje tehnika asistirane reprodukcije

Javno finansiranje po zemljama je dostupno za čitav niz asistiranih reproduktivnih tehnologija, IVM, PGD, AH, OD,SD. Sedam zemalja (Danska, Francuska, Slovenija, Švedska, Velika Britanija uključujući Englesku, Škotsku i Vels) finansiraju ili delimično finansiraju IVM kroz svoje nacionalne zdravstvene programe. 22 zemlje (Australija, Austrija, Belgija, Bugarska, Češka, Danska, Finska, Francuska, Grčka, Mađarska, Izrael, Italija, Letonija, Novi Zeland, Norveška, Rusija, Slovenija, Španija, Švedska, Velika Britanija) finansiraju ili delimično finansiraju preimplantacionu genetsku dijagnostiku - PGD

indications for the female patient require blocked Fallopian tubes, ovulation problems, endometriosis [5] and genetic diseases that result in miscarriage [2].

Intracytoplasmic sperm injection –ICSI is a technology of micromanipulation where one sperm is injected in the egg cell cytoplasm, thus fertilizing it. Medical indications for ICSI are mostly connected to male infertility, as well as patients who haven't achieved fertilization through IVF [5]. Male infertility comprises oligospermia, asthenospermia, teratospermia, obstructive and non-obstructive azoospermia, when sperms are collected surgically (PESA – percutaneous epididymal sperm aspiration, TESA / TESE – testicular sperm aspiration / extraction). In the case of the presence of antispermatozoal antibodies in both partners, the ICSI method is performed, and after thawing frozen seed samples, the microfertilization method is also applied [2].

Frozen embryo transfer (FET) is an embryo transfer obtained in one of the previous procedures by the classical IVF or ICSI method, followed by frozen vitrification processes. In the FET process, the embryos are thawed and returned to the previously prepared substance. Advantages of FET procedure lie in the fact that the excess embryos from IVF procedures is frozen and then transferred in successive cycles, which enables high cumulative rate of in vitro fertilization [6].

In vitro maturation – IVM is a cycle in which egg cells are gathered from antral follicles of unstimulated or mildly stimulated ovaries. Immature ova are gathered, and the last phase of their maturation is done under laboratory conditions. Medical indications for IVM cycles include patients with polycystic ovary syndromes (PCOS) so as to decrease the risk of ovarian hyperstimulation [7]. In patients with estrogen-dependent cancers (oncology patients), stimulated cycles with standard ovulation stimulation protocols are avoided because they stimulate follicle growth and stimulate estrogen production, so eggs are collected from antral follicles of unstimulated ovaries.

Preimplantation genetic diagnosis – PGD is a micromanipulation technology done by biopsying several embryo cells 5-6 days old, followed by analyzing genetic material of biopsied cells. Medical indication for PGD includes patients with high risk of passing down hereditary diseases to child, patients with

repeated miscarriages and patients above 38 years of age with risk of aneuploidy.

Assisted hatching – AH is a micromanipulation technology by which zona pellucida on embryo is pierced so as to facilitate its release, which increases implantation, as well as pregnancy rates. Medical indications include multiple failed in vitro procedures, as well as multiple failed transfers of frozen embryos.

Frozen oocyte replacement – FORs [8] are cycles which use frozen ova (Oocyte cryopreservation – OoC) [9].

Oocyte donation (OD) represents inseminating ova of the female donor with sperms taken from a male partner. The child's genetics comes from the male partner. Medical indications for oocyte donation include premature ovarian failure (POF), poor quality of ova and oncologically treated patients.

Sperm donation (SD) represents inseminating ova from a female partner with sperms coming from a donor. Medical indications for sperm donation are azoospermia, or other sperm abnormalities.

ART financing

Public financing among countries is available for an entire series of reproductive technologies, including IVM, PGD, AH, OD, SD. Seven countries (Denmark, France, Slovenia, Sweden and the UK (England, Scotland, Wales) fully or partially finance IVM through national health programs. Twenty-two countries (Australia, Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Greece, Hungary, Israel, Italy, Latvia, New Zealand, Norway, Russia, Spain, Sweden, the UK (England, Scotland, Wales) fully or partially finance PGD through their national health programs. There is no documented evidence that the AH expenses are paid through public financing, and there is no documented evidence that the expenses sperm or ovum donation for in vitro are paid through national financing program [3].

ART financed by the National health insurance fund is done in Fertility centers from the Network plan and there are no other options for technologies that cannot be invoiced through National health insurance fund's forms [10]. Technologies such as IVF and ICSI were funded until 2017, and ever since then the National health insurance fund has financed new technologies, such as FER procedure, as well [11,12]. Fertility centers outside the Network plan offer some other mentioned ART

kroz svoje nacionalne zdravstvene programe. Nema dokumentovanih dokaza da su troškovi AH plaćeni kroz javno finansiranje, a ne postoje ni dokumentovani dokazi da se doniranje sperme ili jajnih ćelija za vantelesnu oplodnju plaća kroz nacionalni program finansiranja [3].

U Centrima za BMPO iz Plana mreže se obavljaju tehnologije asistirane reprodukcije koje finansira Republički fond za zdravstveno osiguranje i nema mogućnosti za druge tehnologije koje nije moguće fakturisati kroz obrasce Republičkog fonda za zdravstveno osiguranje [10]. Do 2017 godine finansirane su tehnologije IVF i ICSI, nakon 2017. godine Republički fond za zdravstveno osiguranje finansira nove tehnologije FER-a [11,12]. U centrima za BMPO van Plana mreže se pored osnovnih tehnologija IVF i ICSI mogu primeniti neke od navedenih tehnologija asistirane reprodukcije koje finansiraju sami pacijenti.

Po članu 23 Zakona o lečenju neplodnosti postupcima biomedicinski potpomognutog oplođenja („Sl. Glasnik RS“, br. 40/2017 i 113/2017- dr. zakon) Centar za BMPO mora voditi medicinsku dokumentaciju koju šalje Upravi za biomedicinu. U obrascima koji se dostavljaju Upravi za biomedicinu nalaze se podaci o svim tehnologijama asistirane reprodukcije. Obrasci se dostavljaju Upravi za biomedicinu. Uz njih se navodi i koje tehnologije su korišćene u postupku asistirane reprodukcije i to se zavodi u državni registar.

Cilj članka jeste analiza dostupnih tehnologija asistirane reprodukcije u Centrima za BMPO u Planu mreže i van Plana mreže koje su regulisane Zakonom o lečenju neplodnosti postupcima biomedicinski potpomognutog oplođenja („Sl. Glasnik RS“, br.72/2009), njihovo finansiranje i dostupnost pacijentima u Republici Srbiji.

MATERIJAL I METODE

Članak je napisan na osnovu pretraživanja dokumenata putem interneta i na osnovu analizirane literature dostupne na internetu. Rezultati su dobijeni analizom zvaničnih sajtova centara za BMPO i analizom dostupnih eksternih sekundarnih podataka Republičkog fonda za zdravstveno osiguranje i Instituta za javno zdravlje Srbije „Dr Milan Jovanović Batut“.

REZULTATI

Centri za BMPO sa kojima Republički fond za zdravstveno osiguranje ima zaključen ugovor o pružanju usluga lečenja neplodnosti su:

- Centri za BMPO iz Plana Mreže (državne ustanove):
 1. Klinika za ginekologiju i akušerstvo, Klinički centar Srbije, Beograd
 2. Ginekološko akušerska klinika, Klinički centar Vojvodine, Novi Sad
 3. Ginekološko akušerska klinika, Klinički centar Niš, Niš
 4. Ginekološko akušerska klinika „Narodni Front“, Beograd
 5. Služba za ginekologiju i akušerstvo, Opšta bolnica Valjevo, Valjevo
 6. Klinika za ginekologiju i akušerstvo, Klinički centar Kragujevac, Kragujevac
- Centri za BMPO van Plana mreže (privatne ustanove):
 1. Specijalna ginekološka bolnica za lečenje steriliteta „Nikolov“, Kragujevac
 2. Specijalna bolnica za lečenje steriliteta „Spebo Medical“, Leskovac
 3. Zdravstvena ustanova specijalna bolnica za ginekologiju „Perinatal“, Novi Sad
 4. Specijalna ginekološka bolnica „Feron“, Novi Sad
 5. Specijalna ginekološka bolnica „GINS“, Novi Sad
 6. Specijalna ginekološka bolnica „Genesis“, Novi Sad
 7. Specijalna ginekološka bolnica „Teofanović“, Beograd
 8. Specijalna ginekološka bolnica „Beograd“, Beograd
 9. Specijalna bolnica za ginekologiju „Jevremova“ sa porodilištem, Beograd
 10. Opšta bolnica „Analife“, Beograd
 11. Specijalna ginekološka bolnica za lečenja steriliteta „Intermedicus Bis“, Beograd

Centri za BMPO u Republici Srbiji raspolažu sa svim važnijim tehnologijama asistirane reprodukcije. Tehnologije asistirane reprodukcije koje su dostupne u centrima za BMPO iz Plana mreže i van Plana mreže su date na grafikonu 1.

technologies apart from IVF and ICSI that are financed by patients themselves.

According to Article 23 of the Law on the Treatment of Infertility Procedures of Biomedical Assisted Fertilization, ("Official Gazette of the Republic of Serbia", No. 40/2017 and 113/2017, etc.), a Fertility Center must keep medical records sent to the biomedicine Board. Those records delivered to the Board for biomedicine include data on all ART technologies. Those forms are delivered to the Board for biomedicine, stating which technologies have been used in ART procedures and this is recorded in the state register.

The aim of this article is to analyze available ART methods in Fertility Centers within and outside the Network plan regulated by the Law on the Treatment of Infertility Procedures of Biomedical Assisted Fertilization (Official Gazette of the Republic of Serbia", No. 72/2009), their financing and availability to patients in the Republic of Serbia.

MATERIAL AND METHODS

This article is assembled upon seeking documents using the Internet and based on analyzed literature available on the Internet. The results were gathered by analyzing official ART centers' websites and analyzing available external secondary data from the National health insurance fund and the Institute for public health "Dr Milan Jovanovic Batut".

RESULTS

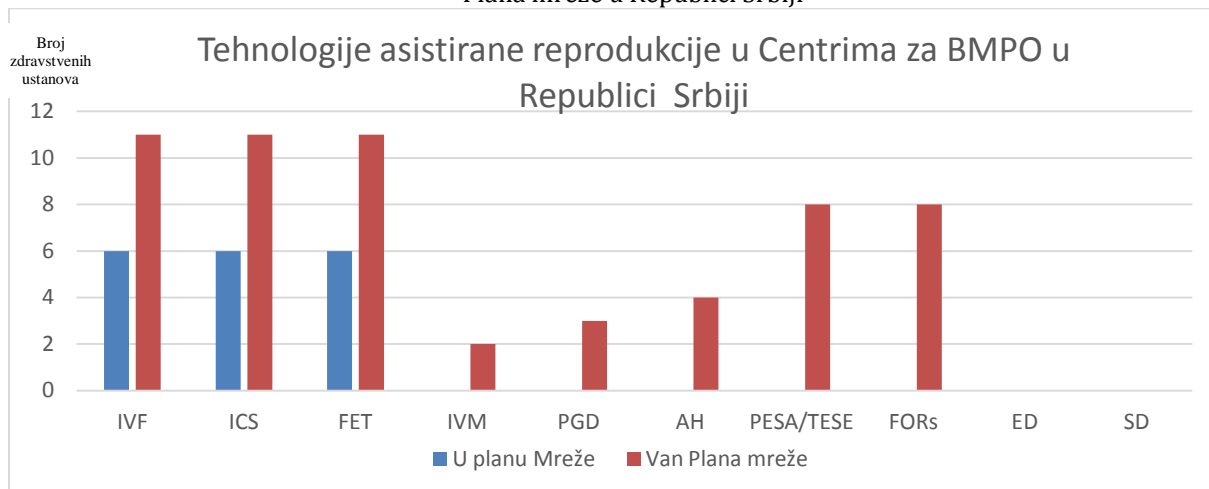
Fertility Centers with whom the National health insurance fund has concluded the contract on providing infertility treatments are:

- Fertility Centers within the Network plan:
 1. Clinic for Gynecology and Obstetrics, Clinical Centre of Serbia, Belgrade

2. Gynecology and Obstetrics Clinic, Clinical Centre of Vojvodina, Novi Sad
3. Obstetrics and Gynecology Clinic, Clinical Centre of Nis, Nis
4. Obstetrics and Gynecology Clinic "Narodni Front", Belgrade
5. Gynecology and Obstetrics Center, General Hospital of Valjevo, Valjevo
6. Clinic of Gynecology and Obstetrics, Clinical Center of Kragujevac, Kragujevac
 - Fertility Centers outside the Network plan:
 1. Special Gynecological Hospital for Treatment of Infertility "Nikolov", Kragujevac
 2. Special Hospital for Infertility Treatment "Spebo Medical", Leskovac
 3. Special Hospital for Gynecology "Perinatal", Novi Sad
 4. "Ferona" IVF Clinic, Novi Sad
 5. Special Hospital for Gynecology "GINS", Novi Sad
 6. Special Gynecological Hospital "Genesis", Novi Sad
 7. Special Gynecological Hospital "Teofanović", Belgrade
 8. Special Gynecological Hospital "Beograd", Belgrade
 9. Special Gynecology Hospital with Maternity Ward "Jevremova", Belgrade
 10. General Hospital "Analife", Belgrade
 11. Special Hospital for Infertility Treatment "Intermedicus Bis", Belgrade

Fertility Centers in the Republic of Serbia have access to all the important technologies for ART. ART technologies available in Fertility Centers within and outside the Network plan are displayed on Chart 1.

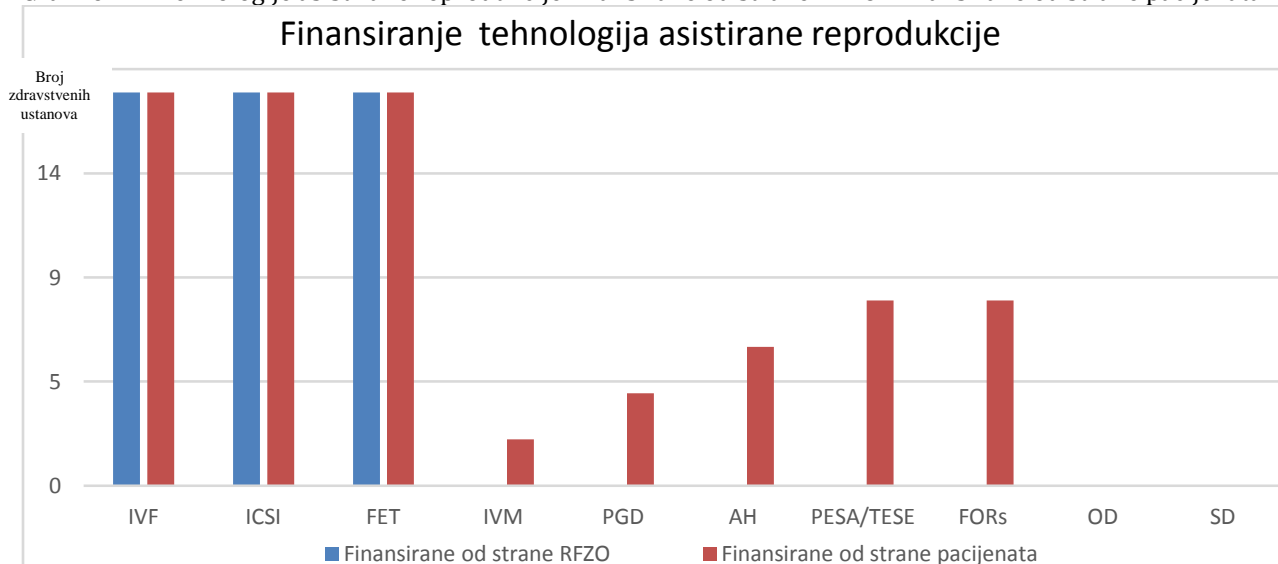
Grafikon 1. Tehnologije asistirane reprodukcije koje su dostupne u centrima za BMPO u Planu Mreže i van Plana mreže u Republici Srbiji



Tehnologije asistirane reprodukcije koje se finansiraju od strane Republičkog fonda za zdravstveno osiguranje su oplodnja in vitro, intacitoplazmatska injekcija spermatozoida i transfer zamrznutih embriona. Pacijenti čije

medicinske indikacije zahtevaju neku od drugih tehnologija mogu njima da pristupe u centrima za BMPO koje su van Plana mreže o svom trošku (grafikon 2).

Grafikon 2. Tehnologije asistirane reprodukcije finansirane od strane RFZO i finansirane od strane pacijenata

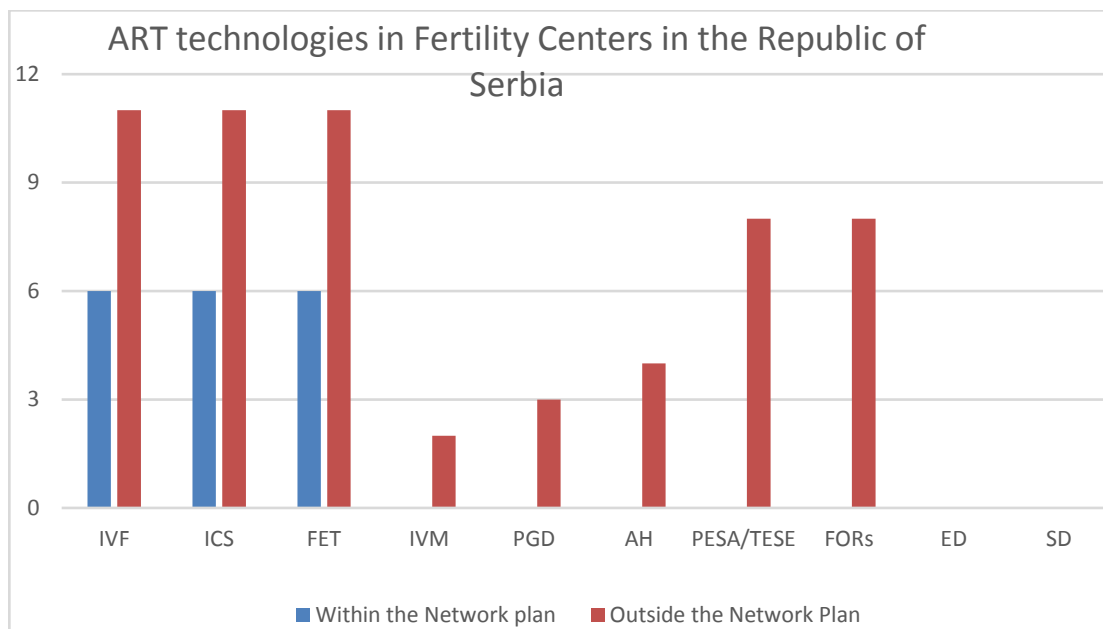


DISKUSIJA

U našoj zemlji dodatni problem za parove jesu slabosti tzv. državnog sistema sprovođenja postupka BMPO. Ti problemi relativno su brojni. Oni se tiču pribavljanja neophodnih dijagnostičkih analiza i dokumentacije za ispunjavanje uslova i kriterijuma neophodnih za otpočinjanje postupka.

Česta neadekvatna opremljenost ustanova i stručnost kadrova koji pružaju usluge tokom postupka BMPO, odsustvo primene najsavremenijih metoda i postupaka reproduktivne medicinske nauke, kao i postojanja relativno dugačkog perioda čekanja za otpočinjanje samog postupka. Vremenska

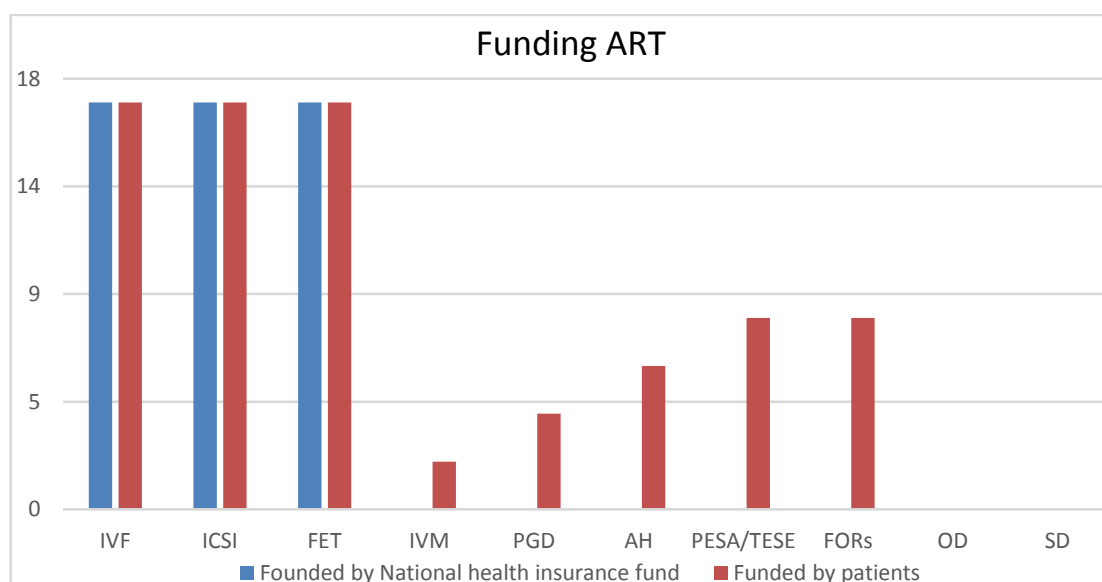
Chart 1. ART technologies available in Fertility Centers within and outside the Network plan in the Republic of Serbia



ART technologies funded by National health insurance fund include in vitro fertilisation, intracytoplasmic sperm injection and frozen embryo transfer. Patients whose

medical indications require for some other technology may approach Fertility Centers outside the Network plan on their own budget (Chart 2).

Chart 2. ART technologies funded by National health insurance fund and funded by patients



DISCUSSION

Additional challenges for couples in our country are weakness of the so-called National System for the implementation of ART

procedures. Such problems are relatively numerous. They concern the assembling necessary diagnostic analyses and documentation for eligibility and criteria needed

dimenzija je ovde od izuzetnog značaja, uzimajući u obzir da je starost pacijenta od izuzetne važnosti za uspešnost oplodnje [13].

Najranije nađeni podaci u Republici Srbiji datiraju iz 2004. i pokazuju da se osim privatnih klinika, (do čije interne dokumentacije nije bilo moguće doći), u Srbiji asistiranom reprodukcijom bavio samo Institut za ginekologiju i akušerstvo Kliničkog centra Srbije. Sumarni izveštaji na godišnjem nivou pokazuju da broj tretmana varira i da verovatno zavisi od (ne)razvijenosti tehnologije, već od socijalnih i ekonomskih faktora. Ovi podaci pokazuju da je broj asistiranih reprodukcija u državnim institucijama prema broju započetih ciklusa u Srbiji za 2000. godinu iznosio 178 započetih ciklusa, za 2001. godinu iznosio 296 započetih ciklusa, za 2002 iznosio 174 započeta ciklusa i 2003. godinu iznosio 149 započetih ciklusa. Veoma skup postupak asistirane reprodukcije u Srbiji su finansirali sami parovi [1].

Republički fond za zdravstveno osiguranje od 2006. godine finansira Nacionalni program lečenja neplodnosti postupcima BMPO, prema indikacijama koje je propisala Republička stručna komisija Ministarstva zdravlja Republike Srbije. U periodu od 2009. do 2013. godine Ministarstvo zdravlja donelo je Zakon o lečenju neplodnosti postupcima biomedicinski potpomognutog oplođenja („Sl. Glasnik RS“, br.72/2009), kao i niz podzakonskih akata kojima je ova oblast regulisana. Kako postojeći kapaciteti zdravstvenih ustanova iz Plana mreže nisu dovoljni da bi se zadovoljile prepoznate potrebe svih osiguranih lica, RFZO je u više navrata sklapao ugovore za pružanje pomenutih usluga sa privatnim zdravstvenim ustanovama [14].

U Srbiji su 2013. godine urađene: 634 druge faze potpomognutih fertilizacija IVF metodom i 1105 ICSI metodom [15]. Na osnovu podataka iz analize planiranog ostvarenog obima sadržaja prava osiguranih lica na stacionarnu zdravstvenu zaštitu u Republici Srbiji u 2013. godini pravo na lečenje neplodnosti u postupcima BMPO (na osnovu broja fakturiranih usluga RFZO) o trošku fonda lečilo se 2055 pacijenata: od toga 1659 u centrima za BMPO u Planu mreže (925 IVF i 734 ICSI) i 396 u privatnim centrima za BMPO, van Plana mreže (25 IVF i 371 ICSI). Transfer zamrznutih embriona se nije finansirao od strane RFZO, pacijenti su ga sami finansirali u centrima za BMPO van Plana mreže o čemu nema tačnih podataka.

U 2016. godini urađene su 933 druge faze potpomognutih fertilizacija IVF metodom 1.474 ICSI metodom i 140 transfera zamrznutih embriona [11]. Na osnovu podataka iz analize planiranog ostvarenog obima sadržaja prava osiguranih lica na stacionarnu zdravstvenu zaštitu u Republici Srbiji u 2016. godini pravo na lečenje neplodnosti u postupcima BMPO (na osnovu broja fakturiranih usluga RFZO) o trošku fonda lečilo se 2407 pacijenata: od toga 1529 u centrima za BMPO u Planu mreže (854 IVF i 675 ICSI) i 878 (79 IVF i 799 ICSI) u privatnim centrima za BMPO, van Plana mreže. Počeo je da se finansira i transfer zamrznutih embriona, pa je fakturirano 140 pacijenata: od toga 5 u centrima za BMPO u Planu mreže i 135 u privatnim centrima za BMPO.

U 2017. godini urađeno je 712 drugih faza potpomognutih fertilizacija IVF metodom i 2396 ICSI metodom i 445 transfera zamrznutih embriona [12]. Na osnovu podataka iz analize planiranog i ostvarenog obima sadržaja prava osiguranih lica na stacionarnu zdravstvenu zaštitu u Republici Srbiji u 2017. godini pravo na lečenje neplodnosti u postupcima BMPO (na osnovu broja fakturiranih usluga RFZO) o trošku fonda lečilo se 4064 pacijenata: od toga 956 u centrima za BMPO u Planu mreže (634 IVF i 322 ICSI) i 3108 (712 IVF i 2396 ICSI) u privatnim centrima za BMPO, van Plana mreže. Za transfer zamrznutih embriona fakturirano je 445 pacijenata: od toga 5 u centrima za BMPO u Planu mreže i 440 u privatnim centrima za BMPO.

ZAKLJUČAK

Na osnovu dostupnih i analiziranih podataka možemo zaključiti da centri za BMPO u Republici Srbiji raspolažu sa svim važnijim tehnologijama asistirane reprodukcije. Centri za BMPO u Planu mreže mogu da upotrebljavaju samo tehnologije koje mogu biti finansirane i fakturirane od strane RFZO. Po podacima iz analize planiranog ostvarenog obima sadržaja prava osiguranih lica na stacionarnu zdravstvenu zaštitu u Republici Srbiji jasno se vidi da je broj fakturiranih ICSI ciklusa mnogo veći u centrima za BMPO van Plana mreže što govori o tome da se pacijenti sa težim medicinskim indikacijama upućuju u privatne klinike. Pacijenti sa azoospermijom (PESA/TESE) nemaju mogućnost lečenja u državnim, već isključivo u privatnim klinikama o sopstvenom trošku. Veći broj dostupnih tehnologija asistirane reprodukcije može biti jedan od razloga značajnog porasta

for the onset of the procedure. Frequent inadequate equipment of institutions and expertise of staff that provide services during the BMPO procedure, lack of application of the most modern methods and procedures of reproductive medical science, as well as the existence of a relatively long waiting period for the procedure itself. The time dimension is extremely important here, taking into account that the patient's age is extremely important for the success of fertilization [13].

Earliest found data in the Republic of Serbia date from 2004, where eight private clinics are mentioned and their internal documentation could not be obtained. In Serbia, ART was only done on Clinic for Gynecology and Obstetrics of the Clinical Centre of Serbia. Summary annual reports show that the number of treatments varied and it probable depends on the (under)development of technology, but also on the social and economic factors. These data show that the number of ART in public institutions, compared to the number of started cycles in Serbia for the year of 2000, amounted to 178 started cycles; 296 started cycles for the year of 2001; 174 started cycles for the year 2002; and 149 started cycles for the year of 2003. A very expensive ART procedure in Serbia was financed by couples themselves [1].

National health insurance fund has financed infertility treatments by Biomedical Assisted Fertilization procedures since 2006, according to indications prescribed by National Expert Commission of the Ministry of Health of the Republic of Serbia. Between 2009 and 2013, The Ministry of Health has passed the Law on the Treatment of Infertility Procedures of Biomedical Assisted Fertilization (Official Gazette of the Republic of Serbia", No. 72/2009), as well as a series of bylaws that regulate this area. As the existing capacities of medical institutions within the Network plan are not enough to meet the needs of all insured individuals, National health insurance fund has concluded contracts for administering mentioned services with private medical institutions on several occasions [14].

In the year of 2013, there were 634 second phases of assisted IVF fertilizations done in Serbia, accompanied by 1,105 ICSI procedures [15]. Based on the data available from analyzed planned and achieved scope of content rights of insured individuals to stationary medical care in the Republic of Serbia in 2013, the right to infertility treatment financed by the Fund (based

on invoiced services of National health insurance fund) was granted to 2055 patients, 1659 of which in Fertility Centers within the Network plan (925 IVF and 734 ICSI) and 396 in private BAF Centers outside the Network plan mreže (25 IVF and 371 ICSI). Frozen embryo transfer was not financed by the Fund, so patients financed the procedure themselves in Fertility Centers outside the Network plan, of which there are no accurate data.

The total of 933 second phases of assisted fertilizations by IVF method were done in 106, followed by 1,474 ICSI methods and 140 frozen embryo transfers [11]. Based on the data available from analyzed planned and achieved scope of content rights of insured individuals to stationary medical care in the Republic of Serbia in 2016, the right to infertility treatment financed by the Fund (based on invoiced services of National health insurance fund) was granted to 2407 patients, 1,529 of which in Fertility Centers within the Network plan (854 IVF and 675 ICSI) and 878 (79 IVF and 799 ICSI) in private Fertility Centers outside the Network plan. Frozen embryo transfer also came to be funded, so there were 140 invoices from patients, 5 of which in Fertility Centers within the Network plan and 135 in private ART centers.

There were 712 second phases of assisted fertilizations by IVF method done in 2017, followed by 2,396 by ICSI method and 445 frozen embryo transfers [12]. Based on the data available from analyzed planned and achieved scope of content rights of insured individuals to stationary medical care in the Republic of Serbia in 2017, the right to infertility treatment financed by the Fund (based on invoiced services of National health insurance fund) was granted to 4064 patients, 956 of which in Fertility Centers within the Network plan (634 IVF and 322 ICSI) and 3,108 (712 IVF and 2,396 ICSI) in private Fertility Centers outside the Network plan. Frozen embryo transfer also came to be funded, so there were 445 patients, 5 of which in Fertility Centers within the Network plan and 440 in private Fertility Centers.

CONCLUSION

Based on the available and updated data we can conclude that Fertility Centers in the Republic of Serbia have access to all the important technologies for ART. Fertility centers within the Network plan can implement only the technologies financed and invoiced by the Fund.

pruženih usluga u privatnim zdravstvenim ustanovama.

PS. Postavlja se pitanje zašto usluge donacija oocita/spermatozoida, koje su zakonom za BMPO dozvoljene, nisu dostupne ni u centrima

za BMPO u Planu mreže kao ni u centrima za BMPO van Plana mreže. Ako centri za BMPO u Planu mreže nisu opremljeni, zašto se ove usluge ne pružaju u centrima za BMPO van Plana mreže.

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Based on the data available from analyzed planned and achieved scope of content rights of insured individuals to stationary medical care in the Republic of Serbia, it is evident that the number of invoiced ICSI cycles is significantly larger in Fertility Centers outside the Network plan, which shows that patients with graver medical indications are referred to private clinics. Thus for example patients with medical indications for azoospermia do not have possibility of treatment in Fertility centers within the Network plan, only in Fertility centers outside the Network plan that are financed by patients

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themselves. Moreover, the higher number of available ART technologies may be one of the reasons for the significant growth of services provided in private medical institutions.

P.S. A question arises as to why the lawfully granted oocyte and sperm donation services are not available neither in Fertility Centers within, nor outside the Network plan. If Fertility Centers within the Network plan are not equipped, why aren't these services available in Fertility Centers outside the Network plan?