

Review article/Pregledni prispevek

## THE ART PROGRAMME IN SLOVENIA – OUR PLACE IN EUROPE (SLOVENIA IN EIM 2005 YEAR REPORT)

PROGRAM OPLODITVE Z BIOMEDICINSKO POMOČJO V SLOVENIJI – NAŠE  
MESTO V EVROPI (SLOVENIJA V POROČILU EIM ZA LETO 2005)

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### Abstract

**Background** *We have been sending Slovenian data on biomedically assisted procreation (BMAP) to European IVF Monitoring (EIM) registry since 2001. In order to see our place in Europe, we compare our data for 2005 to the last available EIM – 2005 report data.*

**Methods** *The summaries of all three Slovenian centres sent to EIM 2005 report : 3292 BMAP cycles (730 IVF cycles, 1495 ICSI cycles, 584 FER cycles, 470 IUI cycles) in a population of 2.003 358 inhabitants were compared to the results in 418 111 BMAP cycles reported from different European countries.*

**Results** *The calculated cumulative live birth rate per fresh IVF/ICSI cycle in Slovenia was 27.7 % . The availability in Slovenia corresponded to 1.643 assisted reproduction cycles and 1402 IVF, ICSI or FER cycles per million inhabitants . The percentage of infants born after BMAP was 3.9 % . In 2005 there were 0.4 % births of triplets and 18.9 % births of twins.*

**Conclusions** *The results in 2005 reflect our law which permits the fertilisation of all oocytes and the cryopreservation of vital remaining embryos The calculated cumulative live birth rate per fresh IVF/ICSI cycle was comparable to the best rated European countries. Considering the availability of BMAP per million inhabitants, Slovenia was on the 7<sup>th</sup> place in Europe. The percentage of infants born after BMAP was the highest in Europe . Slovenia was between 12 European countries with a successful PGD programme to prevent severe hereditary diseases.*

**Key words** *IVF; ICSI; FER; EIM; multiple pregnancy*

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### Izvleček

**Izhodišča** *Od leta 2001 pošiljamo slovenske podatke o oploditvi z biomedicinsko pomočjo (OBMP) v Evropski register za IVF (EIM). Za oceno naše evropske umestitve primerjamo naše podatke za leto 2005 s podatki v zadnjem poročilu EIM za leto 2005.*

**Metode** *Slovensko poročilo obsega podatke iz vseh treh slovenskih centrov za leto 2005. Obsega 3292 ciklusov OBMP na 2 003 358 prebivalcev: 730 ciklusov IVF, 1495 ciklusov ICSI, 584 ciklusov prenosa odmrznjenih zarodkov in 470 ciklusov intrauterine inseminacije (IUI). Podatke primerjamo s podatki o 418 111 ciklusih OBMP v različnih evropskih državah v letu 2005.*

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Rezultati	<i>Izračunani delež rojstev živih otrok na svež postopek IVF ali ICSI za leto 2005 v Sloveniji znaša 27,7 %. Dostopnost do postopkov OBMP v Sloveniji prikazuje 1402 ciklusov IVF, ICSI in prenosa odmrznjenih zarodkov na milijon prebivalcev. Delež rojstev otrok iz OBMP je znašal 3,9 %. V letu 2005 je bilo 0,4 % porodov trojčkov in 18,9 % porodov dvojčkov.</i>
Zaključki	<i>Rezultati zrcalijo vpliv našega zakona, ki dovoljuje oploditev vseh jajčnih celic in zamrzovanje vseh preostalih vitalnih zarodkov. Izračunani kumulativni delež poroda živega otroka na svež prenos zarodka je primerljiv z deležem poroda živega otroka v najuspešnejših evropskih državah. Dostopnost postopkov OBMP nas uvršča na 7. mesto, delež otrok, ki se rodijo iz postopkov OBMP, pa celo na prvo mesto v Evropi. Leta 2005 smo bili ena od 12 evropskih držav z uspešnim programom predimplantacijske genetske diagnostike (PGD).</i>

**Ključne besede** IVF; ICSI; FER; EIM; mnogoplodna nosečnost

## Introduction

The data collection system on biomedically assisted procreation (BMAP) in Slovenia covers of all three IVF centres in Slovenia and is based on the summaries of their yearly activity. Since 2001 we have been sending Slovenian data to European IVF Monitoring (EIM) registry.<sup>1</sup> By EIM registry data it is possible to compare data on availability, efficacy, quality, risks and trends of BMAP in different countries.<sup>2</sup> Differences in results may help to improve efficacy and safety of BMAP procedures and also to find common legislative solutions in the future.

## Material and methods

We are presenting the Slovenian data sent to EIM registry for 2005. In our 2005 report there were 730 IVF cycles, 1495 ICSI cycles, 584 frozen-thawed embryo replacement (FER) cycles, 13 egg donation cycles and 470 homologous IUI cycles. A total of 3292 BMAP cycles were performed in a population of 2.003 358 inhabitants, corresponding to 1.643 assisted reproduction cycles or 1402 IVF, ICSI or FER cycles per million inhabitants. After IVF and ICSI the distribution of transfer of 1, 2 or 3 embryos was 30 %, 58 %, and 12 % respectively. Frozen-thawed embryo replacements represented 22.5 % of all embryo replacements after IVF and ICSI. There were 12 egg donation cycles and 14 initiated PGD cycle

## Results

For IVF the clinical pregnancy rate per aspiration and per transfer was 28.6 % and 34 %, respectively. For ICSI the corresponding rates were 28.1 % and 30.5 %. For FER the pregnancy rate per attempt was 18.8 % and per transfer 19.9 %. After IVF, ICSI and FER there were 583 deliveries: 477 singleton deliveries, 104 twin deliveries and two deliveries of triplets. The total multiple delivery rate among IVF and ICSI represents 19 %. Between 691 infants born there were 69 % singletons, 30 % twins and 1 % triplets. There were no embryo reductions. Clinical pregnancy rate per 554 FER cycles was 19.9 %. The estimated cumulative live birth rate was 27.7 % with the multiple delivery rate 18.7 %. The result is compa-

rable to respective data from Finland 29.15 % and 11.3 %, Sweden 24.1 % and 7.94 % and UK 26.7 % and 24.7 %. The infants born after IVF, ICSI and FER represent 3.9 % of all 18.157 infants born in Slovenia in 2005. The 470 IUI cycles with husband sperm were followed by 12 % delivery rate: 49 singleton and 7 twin deliveries. There were 2 singleton deliveries in 14 initiated PGD cycles and 2 deliveries in 12 egg donation cycles.

## Discussion

The results in 2005 positively reflect our legislation (2), which permits the fertilisation of all oocytes and the cryopreservation of all vital remaining embryos. Despite the Law which permits the transfer of three embryos, the elective double-embryo transfer (DET) was preferably used in Slovenia.<sup>3</sup> The interest for elective single embryo transfer (SET) is growing<sup>4,5</sup> but actually we have no precise overview on SET in Slovenia. In 2005 there was practically no problem of triplets but the multiple pregnancy rate was still to high. The calculated cumulative live birth rate per fresh IVF/ICSI cycle was comparable to the estimated live birth rate in highest rated European countries. The estimated cumulative live birth rate in Slovenia was 27.7 % with the multiple delivery rate of 18.7 %. The result is comparable to respective data from Finland 29.15 % and 11.3 %, Sweden 24.1 % and 7.94 % and UK 26.7 % and 24.7 %.<sup>1</sup>

The percentage of infants born after BMAP – 3.9 %, was the highest in Europe. It is interesting to see respective data from some other countries: Denmark 3.5, Belgium 3.5, Iceland 3.3, Finland 2.7 %, France 1.7 % and UK 1.6 %.<sup>1</sup>

The availability in Slovenia corresponded to 1.643 assisted reproduction cycles or 1402 IVF, ICSI or FER cycles per million inhabitants. According to this parameter (IUI excluded) the availability of BMAP in Slovenia was close to Scandinavian countries and Belgium: Denmark with 2209, Iceland 2197, Belgium 2187, Finland 1568, Sweden 1516, Norway 1445 cycles per million inhabitants and higher compared to: France with 1174, Netherlands 1071, Switzerland 828 and UK 697 cycles / million inhabitants

It is important to note that in 2005 Slovenia was between 12 European countries with a successful preim-

plantation genetic (PGD) programme to prevent severe hereditary disease. The egg donation programme was successful but limited due to low interest for altruistic ovum donation.<sup>6</sup>

The results undoubtedly show the growing importance of BMAP and also of BMAP data collection in Slovenia. Besides the evidence of availability and efficacy, the BMAP data collection also increased public awareness of iatrogenic multiple pregnancy.<sup>1, 3-5</sup> In consequence the Slovenian State's insurance in 2008 supported the use of elective SET in the first two cycles in women at high risk for twins and by extending the total of fresh BMAP cycles from 4 to 6 which could make the slovenian IVF program safer and even more successful.

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