Infertility or sterility or barrenness is defined as a state of inability to conceive after a year of unprotected intercourse. Ovulation problems, uterine tube problems, endometriosis, uterine etiology problems, chromosomal problems which are not so rare, spermatogenesis disorders and azoospermia are stated as the most common causes of infertility. 

**Objective:** Main objective of this research is to present most common causes of marital infertility in Bosnia-Herzegovina population. 

**Material and methods:** Retrospective, descriptive epidemiological study has been published at Bahceci IVF center in Sarajevo (Bosnia and Herzegovina). The research covered a time-period of two years. During the time-period in question, 826 marital couples from Bosnia and Herzegovina diagnosed with marital sterility approached the Center.

**Results:** Analysis of female patients as per age groups determined that the largest number of respondents belonged to the 36 – 39 age group with a total number of 293 patients, followed by 30 – 35 age group with a total number of 245 patients, and the third most frequent age group included those of ≥ 40 years of age with 179 patients in total, followed by 25–29 age group with 98 respondents. In 42% (n=350) of the couples diagnosed with marital infertility, female sterility was established as the reason, while in 36% (n=294) of the couples, male sterility was the reason. Both marital spouses were infertile in 11% of the couples (n=92), while in remaining 11% of the couples, no diagnosis was determined and they belonged in the group of unexplainable sterility.

The most common cause of sterility in women is diminished ovarian reserve (DOR), as was the case in 38.57% of respondents. This diagnosis is in direct correlation with the age of a woman. Among causes of sterility of organic and functional origin, the most common is ovarian tube problem – in 31.4% of the cases, then ovulatory problems – in 12.86% of the cases, and polycystic ovary syndrome in 6% of the cases. Other causes such as endometrioma, endometriosis and genetic factors are present in less than 2% of respondents. Regarding male sterility, problems with spermatogenesis are prevailing (decreased number and mobility of sperm cells and problems with morphology of sperm cells), oligoasthenoteratozoospermia in 81.61% of the patients. In 14.19% of the cases, azoospermia was present.

**Conclusion:** All of this contributes to the negative demographic trend in Bosnia and Herzegovina. In 2008, European Parliament warned of importance of infertility treatment. In collaboration with ESHRE (European Society of Human Reproduction and Embryology), main guidelines to alleviate this problem were provided.

**Key words:** infertility, Bosnia and Herzegovina.
of 45 years old women have no possibility of conceiving a child. (3, 4) As primary reason, diminished ovarian reserve is stated, as well as lowered quality and ability of ovarian cell fertilization, smaller number of sexual relations, larger number of clinical and subclinical miscarriages and various conditions which lessen the chance of fertilization, the rate of which increases with aging (endometrioma, endometriosis, mioma). After 35 years of age, infertility is present in 50% of couples, and the percentage of those with primary infertility increases. Main objective of this research is to present most common causes of marital infertility in Bosnia-Herzegovina population.

2. RESPONDENTS AND METHODS

Retrospective, descriptive–epidemiological study has been published at Bahceci IVF center in Sarajevo (Bosnia and Herzegovina). The research covered a time-period of two years. During the time-period in question, 826 marital couples from Bosnia and Herzegovina diagnosed with marital sterility approached the Center. For each couple, detailed anamnestic , clinical, ultrasonic and laboratory analysis was done which confirmed the diagnosis and possibly determined the cause of infertility. Data on all patients have been entered into patient charts and MITERI, patient-tracking software. Parameters of age of female patients, cause of sterility, diagnostic conditions of infertility in men and women were taken from the database. All data were then statistically processed by way of SPSS statistical program (ver. 21) and they are displayed in tables and graphs.

3. RESEARCH RESULTS

Retrospective – descriptive analysis which encompassed a time-period of two years (June 1st 2012 – June 1st 2014) was done. The research was performed in Bahceci IVF center, and it included all couples who had been diagnosed with marital infertility. The research included 826 couples from the territory of Bosnia and Herzegovina. Analysis of female patients as per age groups determined that the largest number of respondents belonged to the 36 – 39 age group with a total number of 293 patients (35.47%), followed by 30 – 35 age group with a total number of 245 patients (29.66%), and the third most frequent age group included those of ≥ 40 years of age with 179 patients in total (21.67%), followed by 25 – 29 age group with 98 respondents (11.86%). In ≤24 age group, there were only 11 respondents (1.33%). Average age of respondents in this research was 35.41±5.21; oldest respondent was 49, and the youngest was 20 years of age.

In 42% (n=350) of the couples diagnosed with marital infertility, female sterility was established as the reason, while in 36% (n=294) of the couples, male sterility was the reason. Both marital spouses were infertile in 11% of the couples (n=92), while in remaining 11% of the couples, no diagnosis was determined and they belonged in the group of unexplainable sterility.

4. DISCUSSION

It is a cause for concern that on every 10,000 citizens, 83 babies are born every year in Bosnia and Herzegovina, which puts this country at the bottom of the region regarding birthrate. Statistical data shows that in Serbia, 90 babies on every 10,000 citizens are born every year, and 94 babies on every 10,000 citizens are born every year in Croatia (5). This alarming figure
Causes of Sterility in Bosnia-Herzegovina Population

shows that in Bosnia and Herzegovina, birthrate is constantly falling. It’s worth mentioning that major demographic changes are taking place in Bosnia and Herzegovina since the end of war. According to data from the UN, 83 countries have problematic birth rate. In those countries – and Bosnia and Herzegovina is one of them – women will not give birth to a sufficient number of daughters to replace them unless the rate of fertility increases, i.e. the number of children born per a woman. Therefore, the citizens of Bosnia and Herzegovina might completely “disappear” between the years 2500 – 2600 (6). In the past 50 years, a whole host of parameters to describe reproduction and its outcome in Europe have been pointing to a downward trend (7). Along with biological markers of fertility (ovulation, sperm quality, frequency of intercourse, fertilization rate, frequency of spontaneous miscarriage), the best demographic marker of fertility is the rate of live-born dizygotic twins from natural or IVF conceptions. The analysis of demographic trends in Bosnia and Herzegovina determines a drastic fall of birth rate, primarily in Republic of Srpska, and also in Federation of B&H. Data for 2013 shows negative natural increase in 8 out of 10 cantons of Federation of B&H. This alarming data speaks in favor of the claim that infertility epidemics is deeply affecting our population, and that without specific medical, social and political steps, this “crisis” can deepen.

5. CONCLUSION

Retrospective study has shown that the frequency of marital sterility causes is approximately equal in men and women in Bosnia and Herzegovina. Analysis of age of infertile women showed that infertility usually appears between 36 and 39 years of age, which correlates with DOR diagnosis (diminished ovarian reserve) as the main cause of sterility in women. The consequence of such condition is delaying birth of a first child and a need for additional education during professional life and carrier. In men, frequency of azoosperma is increasing. All of this contributes to the negative demographic trend in Bosnia and Herzegovina. In 2008, European Parliament warned of importance of infertility treatment. In collaboration with ESHRE (European Society of Human Reproduction and Embryology), main guidelines to alleviate this problem were provided. Main recommendations refer to creation of macroeconomic conditions to increase the birthrate, but also availability of diagnostic and therapeutic methods for infertile couples. Also, it is recommended that all countries incorporate assisted fertilization methods in their population policy.

CONFLICT OF INTEREST: NONE DECLARED.

REFERENCES

1. The President’s Council on Bioethics. Reproduction and responsibility. The regulation of new biotechnologies. Washington, DC: President’s Council on Bioethics, 2004.
2. American Society for Reproductive Medicine. Smoking and infertility. Fertil Steril. 2006; 86: S172-177.
3. Baird DT, Collins J, Egozcue J, et al. Fertility and ageing. Hum Reprod Update. 2005; 11: 261-276.
4. Ziebe S, Devroy P. Assisted reproductive technologies are an integrated part of national strategies addressing demographic and reproductive challenges. Hum Reprod Update. 2008; 14: 583-592.
5. Wertheimer-Baletić A. Populacijska politika u zemljama s posttranzicijskim obilježjima razvoja stanovništva. Zagreb: HAZU, 2000, p 480.
6. James WH. Monitoring reproductive health in Europe: what are the best indicators? Hum Reprod. 2007; 22(5): 1197-1199.
7. Homan GF, Davies M, Norman R. The impact of lifestyle factors on reproductive performance in the general population and those undergoing infertility treatment: a review. Human Reprod Update. 2007; 13(3): 209-235.