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ORIGINAL ARTICLE

Prevalence of primary and secondary infertility from tertiary center in eastern Saudi Arabia



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KEYWORDS

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Abstract *Background and objective:* Infertility is a universal problem with very limited data in Saudi Arabia. In this retrospective study, we analyzed patients attending the infertility clinics at King Fahd Hospital of the University in Alkhobar, Saudi Arabia, during 2012. *Patients and methods:* All patients who attended the infertility clinics between January and December 2012 were part of the study. The data were collected from the Quadramed Filing system and medical charts for age, length of marriage, primary or secondary infertility, laboratory and radiological investigations, and semen analysis of the husbands. The data were entered into a database and analyzed using SPSS version 14. *Results:* During the study period, 2414 patients were seen at all the clinics of obstetrics and gynecology department of the hospital. In the two infertility and reproductive medicine clinics, 457 patients were seen with primary and secondary infertility. The data from these 457 patients were analyzed. The overall prevalence of infertility was 18.93%. The average age was 33.38 ± 5.39 (20–52) years and the average length of marriage was 64.71 ± 50.84 (12–258) months. Three hundred sixty-one (78.99%) had primary infertility and 388 had no known diseases. The mean follicle-stimulating hormone (FSH) level was 5.91 ± 3.56 IU/L, mean leutinizing hormone level was 4.61 ± 2.11 IU/L and mean prolactin level was 18.4 ± 8.35 μ g/L. The semen parameters showed that 127 (27.7%) subjects had a count less than 15 million, of which 87 (68.5%) were azoospermic. The average progressive motility was 36.62 ± 27.43 %. *Conclusions:* Our study shows that the prevalence of infertility was 18.93% with the primary infertility more common than the secondary. We believe that infertility is an emerging issue and a cause for concern for Saudi Arabia and requires clear direction in the future before it becomes a major public health problem.

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1. Introduction

Infertility is defined as a condition of the reproductive system in which there is a failure to achieve clinical pregnancy after 12 months of regular unprotected sexual intercourse (1). Every couple wants to bear a child but not all couples who wish to have a child will achieve it without medical help. It is estimated that

more than 70 million couples worldwide suffer from infertility, and the majority of them live in developing countries (2).

Boivin et al. (3) reported the prevalence of infertility as between 5.0% and 25.7%. The World Health Organization (WHO) labeled infertility as a worldwide public health issue which does not give attention it deserves. Reports suggest that infertility in 1990 and 2010 is similar in the developed world as 1.9% of child-seeking women aged 20–44 years experienced primary infertility and 10.5% secondary infertility, but Infertility prevalence was highest in developing countries including the Middle East (4).

Various causes have been attributed to infertility depending on the country and the prevalence observed. Reproductive tract infections, particularly sexually transmitted diseases (STDs) (5,6), tuberculosis (7), sickle cell disease, polycystic ovary syndrome, endometriosis, and fibroids contribute to infertility (8,9). Recently, Joffe (10) found that semen quality has declined in north-western Europe.

The study of prevalence and causes of infertility in Saudi Arabia is a neglected subject even though the total fertility in Saudi Arabia has dropped from 7.30 in 1970–1975 to 3.03 in 2005–2010 (11). In addition for a population of 4.1 million in the eastern province of Saudi Arabia, there is not a single government hospital with an in vitro fertilization (IVF) and only four centers exist in private institutions.

The objective of this study was to address three questions and find the prevalence of infertility in patients attending the university hospital, secondly what is the impact of the lack of free service at government institutions, and lastly what should be the future direction to provide fertility services.

2. Patients and methods

All patients who attended the infertility clinics between 1st January and 31st December 2012 were included in this study. Approval for the study was obtained from the research and ethical committee of the University of Dammam and King Fahd Hospital of the University in AlKhobar. Medical record numbers of patients who attended infertility clinics and who underwent full assessment were identified from the Quadramed system and outpatient logbooks. Patients data included history, age, number of years of marriage, occupation, personal lifestyle, any known diseases, previous surgery, and primary or secondary infertility were available and recorded. Laboratory tests performed included complete blood picture, follicle-stimulation hormone (FSH), leutinizing hormone (LH), and prolactin level. The details of the husband's semen analysis, volume, count, motility, and morphology, were entered. The semen parameters were compared to the normal reference values as described by the World Health Organization (12).

The data were entered into a database and analyzed using a *t*-test to compare means between the different levels of number and morphology of the semen samples. The data were analyzed using SPSS version 14. A *p* value of <0.05 was considered statistically significant.

3. Results

The data of 457 patients were analyzed. The overall prevalence of infertility was 18.93%. Three hundred sixty-eight (80.5%)

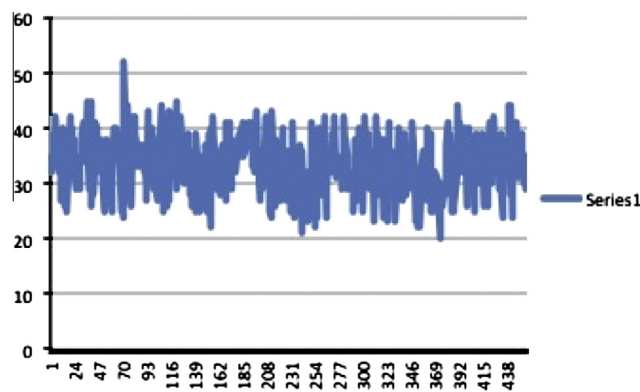


Figure 1 Age range of patients presenting with infertility.

Table 1 Demographic data of all patients with infertility.

Number of patients	457
Mean age (years)	33.38 ± 5.39
Duration of marital status (months)	64.71 ± 44.37
Primary infertility	368 (80.5%)
Mean FSH level	5.91 ± 3.56
Mean LH	4.61 ± 2.11
Prolactin level	18.4 ± 8.35
Motility (%)	34.6 ± 26.88
Total sperm count (million/ml)	115.87 ± 219.6

presented with primary infertility. The average age was 33.38 ± 5.39 (20–52) years. Fig. 1 gives the age range of the patients which shows that the majority of the patients were between the ages of 25 and 40 years. The demographic data of all patients are given in Table 1. The average duration of marital life was 64.71 ± 50.84 (12–258) months. Three hundred sixty-eight (80.5%) were with primary infertility. The mean follicle-stimulating hormone (FSH) level was 5.91 ± 3.56 IU/L, mean leutinizing hormone was 4.61 ± 2.11 IU/L, and mean prolactin level was 18.4 ± 8.35 µg/L. Table 2 gives the comparison between the patients of primary and secondary infertility. There were significant differences between the age, duration of the marriage, and other parameters. The total sperm count was higher in the primary infertility (120.96 ± 72.1 to 93.47 ± 101.2 million/ml, $p < 0.001$ (CI < 37.84)) whereas the progressive motility was much lower $34.6 \pm 26.88\%$ versus $44.55 \pm 49.1\%$. In patients with primary infertility, 127 (27.7%) men, the total count was less than 15 million out of which 87 (68.5%) were azoospermic. The average motility was $36.62 \pm 27.43\%$.

4. Discussion

The prevalence of infertility in this study was 18.93%, which was higher than the 12-month reported prevalence in developed countries. The 12-month prevalence rate ranged from 3.5% to 16.7% in developed countries and from 6.9% to 9.3% in less-developed countries. The prevalence of infertility at our center was higher than reported by Boivin et al. as they found 5–15% from more than 25 countries from all parts of the world (3). The primary infertility was 15.24% out of 2414 patients presented to the department in the year 2012.

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