Epidemiology of Infertility in Al-Qaim, Al-Anbar, Iraq

Ammar Fouad Abdulrazaq1* Hanan Hazim Mohammed Noori2

1*Department of Surgery, Al-Yarmook Teaching Hospital. Baghdad, Iraq.

2Head of Department of Gynecology and Obstetrics, Al-Qaim General Hospital. Al-Anbar Province, Iraq.

• Corresponding author: E-mail: drammar2013@gmail.com, (Ammar F Abdulrazaq)

ABSTRACT

Background: Infertility is a problem of global proportions, affecting on average 8-12% of couples worldwide. Although there were much data on infertility in other countries, little exist on infertility in Iraq.

Aim of study: To examine the types of infertility and its etiology in Al-Qaim city, Al-Anbar province, Iraq.

Patients and Methods: A prospective study included 200 couples with history of infertility period of more than one year in Al-Qaim General Hospital, Al-Anbar province, Iraq from Jul, 2011 – Jul, 2013 were evaluated.

Results: Of the 200 couples enrolled in this study; 124 (62%) had primary infertility and 76 (38%) had secondary infertility. The infertility period ranges from 1 to 18 years (mean 4.6 ± 1.8 years for the primary group and 3.8 ± 1.4 years for the secondary group). Male factors were the sole cause of infertility in 17% and combined with female factors in another 30% so contribute to about half of the cases of infertility in our study (47%). Ovulatory disturbances were the main cause for female infertility 54%. The overall pregnancy rate was 74%.

Conclusion: A high rate of primary infertility and male factor predominance were the main findings in this study. Future research direction should focus on the reasons why majority of clients seek this service very late. Effective empirical treatment can save some both men and women from problems of male and female infertility.

Keywords: Infertility, primary, secondary, ovulatory disturbances, Iraq.

How to cite this article: Abdulrazaq AF, Noori (2019): Epidemiology of infertility in Al-Qaim, Al-Anbar, Iraq, Ann Trop Med & Public Health; 22(VI): S185. DOI: http://doi.org/10.36295/ASRO.2019.22065

Introduction

Infertility is a widespread problem. Infertility is the absence of pregnancy in the couple after a year and a half to marry with an unplanned intercourse and twice a week1-7. It is a heavy burden on countless families, with important implications for both individual and public health8, including psychological distress, social stigmatization, economic constraints, may lead to family separation and later-onset adult diseases9-12. It is categorized as primary or secondary. The primary infertile female is a woman who has never been diagnosed with a clinical pregnancy and meets the criteria of being classified as having infertility. Secondary female infertility applies to a woman unable to establish a clinical pregnancy but who has previously
been diagnosed with a clinical pregnancy. The average prevalence of infertility in developed countries is 3.5-16.7% and in developing countries is 6.9-9.3%. Worldwide > 186 million people suffer from infertility, the majority being residents of developing countries. Causes of infertility are numerous such as anatomical, physiological and genetic factors. Many environmental and acquired factors also influence fertility and may lead to infertility. Menstrual and ovulation dysfunction and uterine factors are the most common causes of impairment in fertility. Etiology of infertility prevalence and patterns of causes of infertility in different regions are diverse. This discrepancy is due to existence of differences in environmental conditions associated with reproductive behaviors, such as age at marriage, environmental pollution, smoking and alcohol abuse, psychological factors, changing in lifestyle and diet. While the most powerful negative predictive factor of fertility is increasing women's age at conception, other factors including lifestyle and environmental factors are believed to play an increasing role. Factors influencing fertility will be presented as gender specific or not. Infertility in Iraq is increased, especially in the last 16 years (2000–2016) related to many factors, such as war, lifestyle, stress, smoking, occupation, eating behavior, and hereditary. Although many studies have been conducted on the prevalence of infertility in the world, because infertility is increasing and the lifestyle is changing and there is no comprehensive research in this area in Al-Anbar, it seems necessary to investigate the causes of infertility widely in Al-Anbar. Knowing the frequency of different causes of infertility in every region is important and can be effective in manager decisions. Due to the progress of methods of infertility treatment and the development of infertility treatment clinics in many cities of Iraq, the majority of people within fertility problems after a while referred to these centers. Thus it seems that the infertile persons admitted to these centers can be a target population for the study of infertility in each region. In this study, different causes of infertility were examined in infertile couples. The rate of infertility increased in Iraq as in malignancy and may related to infectious diseases.

**Patients and Methods**

**Study Design and Setting:** This is a prospective study that was conducted in both private clinics or Al-Qaim General Hospital in Al-Anbar province during a period of two years from Jul, 2011 – Jul, 2013.

**Study Population and sample size:** The study population included 200 couples who had difficulty in conceiving or maintaining an established pregnancy after one year of normal marital life who attended private clinics or the selected general hospitals seeking for diagnosis and management. Initial evaluation includes a full history from both the wife and the husband which included general condition, any previous or present illness or surgery, this was followed by sexual history including frequency and timing of sexual intercourse. For the female partner, history include questions about late menarche, presence of premenstrual syndrome, abnormal cycle length, and amount of menstrual loss, premenstrual spotting, hot flushes, and excessive physical exercise and/or weight changes greater than 10% in the past year, history of previous IUCD and recurrent vaginal infections, thyroid diseases and medical treatment and recreational drugs. Physical examination including body shape and stature, evaluation of secondary sexual characteristics; hair distribution, breast development, spontaneous and manually induced galactorrhea. The vagina and the cervix examined as part of pelvic examination, further evaluation includes:
• Ultrasonic examination to look for any uterine or pelvic lesions interfering with fertilization and for evidence of ovulation at mid cycle.
• Hormonal study in early follicular phase including serum LH, FSH, prolactine, TSH and day 21 progesterone level.
• Hysterosalpingography to assess tubal factors.

For the male partner, history include questions about the volume of the ejaculate, reduction of beard growth and libido, asthenia and history of smoking, excess alcohol consumption, drug abuse, occupational exposure to toxicants, ongoing medical treatments (anabolic steroids, chemotherapy, sulfasalazin), high fever in the past six months, testicular injury, mumps orchitis, surgery, and cryptorchidism. Examination including looking for secondary sexual characteristics; hair distribution reduction of beard growth sparse or absent body hair, gynecomastia, low testicular volume and the presence of varicocele, epididymal thickening and other abnormalities of the genitalia. Most patients had already been examined, usually extensively, if this was not the case, a semen analysis was requested from the husband. Semen samples were collected by masturbation after a period of sexual abstinence of 3-5 days. The samples were analyzed by the same technician following standard protocols of WHO laboratory manual\(^{[11]}\). If repeated semen analysis six weeks apart shows azoospermia, oligospermia, asthenospermia or teratospermia, further evaluation including testicular ultrasonic and colored Doppler exam, hormonal study and for some azoospermic patients, testicular biopsy (if the patient agreed).

Therapy began as soon as indicated and continued as the diagnostic evaluation progressed. Treatment were empirical; male partners were treated with antibiotics, antioxidants (vitamin E, C), antiestrogens, human chorionic gonadotropin or human menopausal gonadotropin according to the patient clinical condition and investigation and the response to the steps of treatment.

The female treatment includes treatment of infections were they received antibiotics covering both gonorrheal and chlamydia infections with or without antioxidant, treating hyperprolactinemia, ovulation induction with antiestrogen with or without metformin, and gonadotropin injection. Resistance or failed cases were referred for ovarian drill or InVitroFertilization (IVF). The later also prescribed for those with severe male or severe tubal factors. For those with hypothyroidism, they were treated by oral thyroxin. The type of infertility, the etiology, the pregnancy rate and the problem in the managements were recorded, analyzed and compared with other studies.

**Results:**

In this study, 200 couples were enrolled. The age of the women was ranging from 16 to 45 years with a mean of 28.2 ± 6.8 years; while for men, it was ranging from 19 to 55 years with a mean of 33.7 ± 8.3 years and the mainly affected age was from 20–29 years (41% in males and 51% in females) as shown in figure (1).
We noticed that 124 (62%) couples were complained from primary infertility, while secondary infertility was reported in 76 (38%) couples. The infertility period ranged from one year to 18 years with a mean of 4.6 ± 1.8 years for the primary group and 3.8 ± 1.4 years for the secondary group.

Regarding seminal fluid analysis, 52.4% of males with primary infertility were showed normal results while 25.8% of them were sub-fertile. In males complaining from secondary infertility, 51.3% showed normal results while 34.2% were sub-fertile. About female causes of infertility, the most common cause in female patients with primary and secondary infertility was ovulatory disturbances (52.4% and 56.6% respectively) as shown in table (1).

### Table 1: Seminal fluid analysis result for males and causes in females according to type of infertility

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type of infertility</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary (%)</td>
<td>Secondary (%)</td>
</tr>
<tr>
<td></td>
<td>n= 124</td>
<td>n= 76</td>
</tr>
<tr>
<td><strong>Seminal fluid analysis result</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azoospermia</td>
<td>9 (7.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Oligoasthenospermia</td>
<td>18 (14.5)</td>
<td>11 (14.5)</td>
</tr>
<tr>
<td>Sub-fertile</td>
<td>32 (25.8)</td>
<td>26 (34.2)</td>
</tr>
<tr>
<td>Normal</td>
<td>65 (52.4)</td>
<td>39 (51.3)</td>
</tr>
<tr>
<td><strong>Causes detected in females</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>40 (32.3)</td>
<td>15 (19.7)</td>
</tr>
<tr>
<td>Uterine factors</td>
<td>2 (1.6)</td>
<td>6 (7.9)</td>
</tr>
<tr>
<td>Tubal factors</td>
<td>17 (13.7)</td>
<td>12 (15.8)</td>
</tr>
<tr>
<td>Ovulatory disturbances</td>
<td>65 (52.4)</td>
<td>43 (56.6)</td>
</tr>
</tbody>
</table>
The most common cause of ovulatory disturbances in females was hyperprolactinemia (51.9%) followed by PCOS (32.4%) as shown in figure (2).

In the primary infertility group, female factors were detected in 51 (41.1%), in the secondary infertility group, female causes were detected in 39 (51.3%); yielding a total sole female factor in 90 (45%). Of those with female factor infertility, 41 females (45.6%) reported that they became pregnant after management as shown in table (2).

In this study, we achieved pregnancy rate in 148 couples (74%).

### Table 2: Causes of infertility according to type of infertility

<table>
<thead>
<tr>
<th>Cause of infertility</th>
<th>Type of infertility</th>
<th>Total (%) (n= 200)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary (%)</td>
<td>Secondary (%)</td>
</tr>
<tr>
<td></td>
<td>n= 124</td>
<td>n= 76</td>
</tr>
<tr>
<td>Male factors</td>
<td>21 (16.9)</td>
<td>13(14.5)</td>
</tr>
<tr>
<td>Female factors</td>
<td>51 (41.1)</td>
<td>37 (48.7)</td>
</tr>
<tr>
<td>Combined</td>
<td>41 (33.1)</td>
<td>19 (25.0)</td>
</tr>
<tr>
<td>Unexplained</td>
<td>11 (8.9)</td>
<td>7 (9.2)</td>
</tr>
</tbody>
</table>

### Discussion

Infertility is a life crisis affecting patients from all around the world. Infertile patients experience a tremendous amount of emotional turmoil as the result of their diagnosis. Patients who are struggling to conceive report feelings of depression, anxiety, isolation, and loss of control. In this study, 200 couples were investigated for infertility, 62% had primary
infertility, the infertility period range from 1 to 18 years (mean of 4.6 ± 1.8 years) which is lower than the result of a studies conducted by Razzak et al in Duhok – North of Iraq 2002 \(^{13}\) where they reported 77.2% primary infertility, a study in Morocco 2018 when it reported 67.3% primary infertility \(^{14}\), and study by Abdalla NM et al reported a primary infertility of 77.4% \(^{15}\), but higher than a study conducted by Mirzaei et al in Iran 2018 (51.9%) \(^{16}\). These differences can be due to factors such as; the gynecology clinic sampling, age and education, especially in geographic areas such as Africa, this difference in prevalence can be justified. Infertility had significant relationship with age, family history of infertility, education level, abortion history and still-birth, BMI and waist circumferences \(^{16}\).

Women in this study were younger, with a longer duration of infertility, than those in studies conducted in Sudan 2019 (28 versus 32.4 years) \(^{17}\), and in UK2009 (28 versus 31 years; and 50 versus 23 months respectively) \(^{18}\), suggesting that Iraqi women are accelerating the start of their families but they are then seeking help late.

Male factors were the sole cause of infertility in 17% and combined with female factors in another 30% so contribute to approaching half of the cases of infertility in this study (47%) which is obviously higher than the result of other studies by Razzak AH et al 2002 (36.8% male and 2% combined) \(^{13}\), by Singh K et al 2017 (37.4% male and 8.4% combined) \(^{19}\), by Chowdhury MA et al 2014 (25.6% male and 18.8% combined) \(^{20}\), and by Panti AA et al 2014 (19.7% male and 16.7% combined) \(^{21}\). This might be explained by environmental factors, pollutions and more exposure of the male to toxic material because of the recurrent wars in the area. Also, it is argued that that male infertility may be particularly problematic for men in our society where both virility and fertility are typically tied to manhood and thus male infertility is a potentially condition, surrounded by a secrecy and stigma.

Ovulatory disturbances were the most common cause of female infertility in this study (54%) which is similar to a study conducted in Sudan 2019 when reported an ovulatory causes of 52% \(^{17}\) and to a study in Iran 2015 (50%) \(^{5}\). In conclusion, a high rate of primary infertility and male factor predominance were the main findings in this study. Future research direction should focus on the reasons why majority of clients seek this service very late. Effective empirical treatment can save some both men and women from problems of male and female infertility.

References

6. Inhorn MC, Patrizio P. Infertility around the globe: new thinking on gender, reproductive technologies and global movements in the 21st
detection, and management. Fertility and sterility. 2010;93(1):16. e1-. e0.
2016;96(3):873-909.
10. Ghafel HH, AL-Rahawi AH. Effectiveness of infertile women’s commitment to implement in vitro fertilization (long/short) protocols.
17. Elhussein OG, Ahmed MA, Suliman SO, Yahya I, Adam I. Epidemiology of infertility and characteristics of infertile couples requesting
19. Singh K, Kumari R, Ranjan A, Bharti G. Analysis of causes and clinical pattern of infertility in couples coming to a tertiary care centre in
22.Haitham N. Al-Koubaisy, SA Lafi.Presentation of brucellosis in an endemic area; west of IRAQ. Egyptian Academic Journal of Biological
Sciences. 2011; 3 {1}: 13-18.

©Annals of Tropical Medicine & Public Health S185