Epidemiology of Female Infertility among Reproductive Age Women in Tikrit City

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Abstract

Background: Infertility is defined as failure to conceive after one year and 6 months of a regular unprotected relationships between couples, it is classified as primary infertility when there is no history of pregnancy have occurred , or secondary when inability to conceive occurs after one or more successful pregnancies . Female infertility is a multifactorial condition caused by many causes like ovarian, PCOS, uterine, and cervical factors, and associated with many risk factors as family history, obesity, blood group types, age and educational level of women. Some medical diseases implicated in causing female infertility mainly thyroid disorders by hormonal disturbance and menstrual irregularity. **Aim**: This study aims to identify the epidemiological factors among reproductive age women attending Obstetrics and gynecology outpatient department in sallahuddin teaching hospital.**Subject and Methods**: This is a cross section study conducted on reproductive age women attending gynecological and obstetrical outpatient department in Salahuddin Teaching Hospital during the period from 1^{5th} October 2018 to 15th April 2019 to identify the frequency, types, causes and sociodemographic associated factors with female infertility. The information regarding the problem and demographic characteristics was obtained according to questionnaire and body weight, height and BMI were recorded.**Results**: This study revealed that frequency of female infertility was 25% with a highest percentage of primary infertility 57% . PCOS where the main ovulatory causes of female infertility constituted about 41%.followed by other risk factors as tubal, uterine, and cervical factors.**Conclusion**: female infertility constituted abut quarter the causes of infertility among reproductive age women in Tikrit city .Primary infertility were the commonest type,most frequent among those between(20_24years age) .PCOS were the major ovulatory causes.

Keywords: *Infertity , Epidemiology, Tikrit*

Introduction

Infertility is a very important issue for couples of childbearing age all over the world[(1).]It is different from the other diseases by it considered as a special reproductive health defect . Although the great effect of infertility on couples ,their families and the whole community ,but it is not a life threatening condition [(1,2).]. It considered a global health issue . Globally 60-80 million infertile couples suffer from infertility problems . The prevalence of infertility ranges from 3.5 % to 16.7% in the developed countries , from 6.9 % to 9.3% in the developing countries ,with an estimated overall median frequency of 9% .[(3,4)]

Infertility is defined as failure to conceive after two years of regular unprotected relationship between couples [(4),]other definitions defined as inability to conceive after one year and 6month of a regular unprotected relationship between couples [(5,6)] .

Infertility classified asprimary when there is no history of pregnancy having occurred ;or secondary when inability to become pregnant occurs after one or more successful pregnancies [(3-5).]

There are many causes of infertility , male infertility constitute about 30 % of infertility causes ,but female infertility constitute in about 70 % of infertility causes which are as the following : [(6-8)].Ovulatory Factor:

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responsible for about 25% of causes of infertility[8-9] Tubal factor: responsible for about 15% of causes of infertility [10-13].Uterine factor :responsible for 5% of female infertility causes [11-14].Un explained infertility constitutes about 25% of infertility, which means any of unexplained causes[11-16].

Subjects and Methods

This cross section study was conducted on600 infertile women (both primary and secondary infertility) of reproductive age group aged 20-49 years attending gynecological outpatient clinic in Salahulddin teaching hospital from 15th October 2018 -15th April 2019.The sample were divided to primary and secondary infertility based on WHO definition and terminologies .[1]The sample study individuals demographic information was obtained according to structured designed questionnaire and by direct interview, weight ,height and BMI were recorded.

Statistical Analysis: Data were coded and entered to computer for statistical analysis,and was conducted by using SPSS program (Statistical Package For Social Science) version 24. Since the variables studied were qualitative data,all data were arranged in frequencies and associations between variables were tested by using the chi-square and p-value below or = 0.05 was considered as significant.

Findings

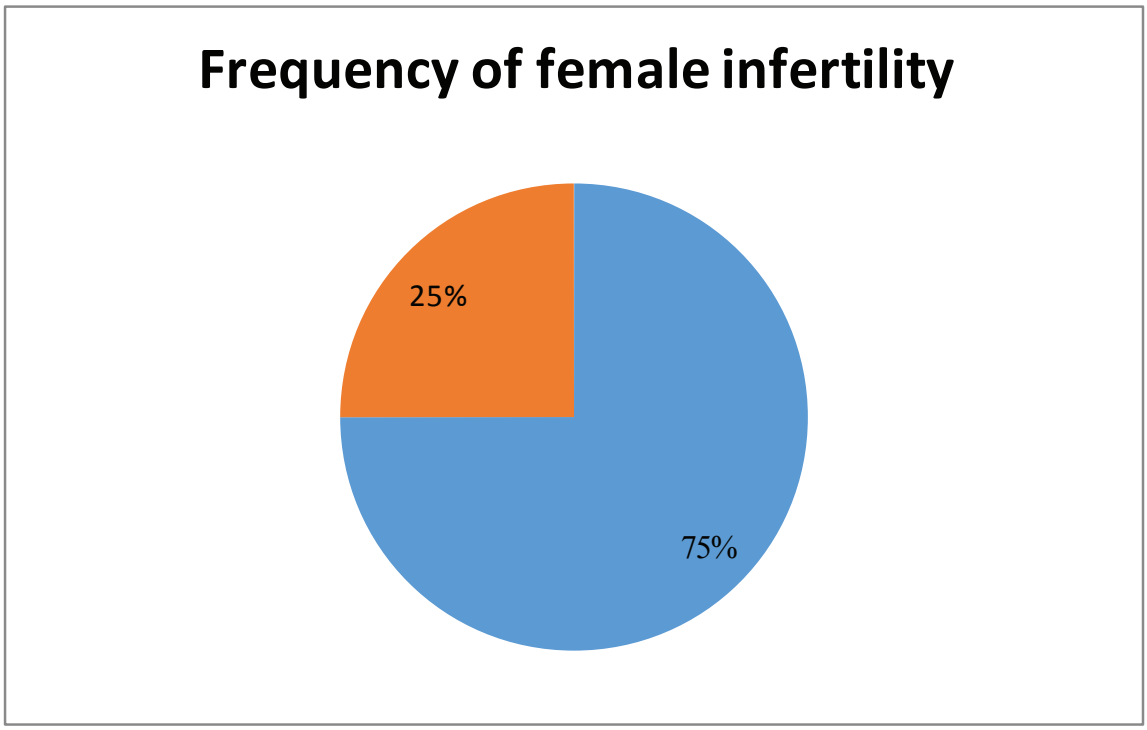

Figure (1): Frequency of female infertility among reproductive age group women

Figure (1) shows that 150 (25%)cases of infertile women were recorded among 600 women attending Sallahuddin Teaching hospital.

Table (1) revealed that primary infertility cases represented about (86 cases) (57%) of cases and the rest were with secondary infertility (64 cases)(43%), and PCOS wasthe most frequent causes of infertility (53.3%) followed by other ovulatory causes (23.3%) but without significant difference. The ovulatory causes of infertility represented (56.6%) of all causes.

Table (1) Distribution of infertility cases according to causes types.

Infertility types / Causes	Primary No. %	Secondary No. %	Total No. %
PCOS	45 (52.3%)	35 (54.7%)	80 (53.3%)
Others ovulatory causes	25 (29.1%)	10 (15.6%)	35 (23.3%)
Tubal	7 (8.1%)	8 (12.5%)	15 (1%)
Uterine and cervical	4 (4.7%)	7 (10.9%)	11 (7.4%)
Unexplained causes	5 (5.8%)	4 (6.3%)	9 (6%)
Total	86 (100%) (57.3%)	64 (100%) (42.7%)	150 (100%) (100%)

The chi-square statistic is 5.5676. The *p*-value is .233848. *Not* significant at $p < .05$.

Table (2) Shows that the most frequent cases of infertility was among age group (20-24 years and age group 30-34 years (27.3%) For each of them followed by the age group (25- 29 years (20%). The most frequent cases of primary infertility was coming from age group (20-24 years) (44.2%) While the most frequent cases of secondary infertility was coming from age group (30-34 years)(46.9%).

Table (2) Distribution of infertile women according to age.

Women's age (year)	Primary infertility No. %	Secondary infertility No. %	Total No. %
20-24	38 (44.2%)	3 (4.7%)	41 (27.3%)
25-29	21 (24.4%)	9 (14.1%)	30 (20%)
30-34	11 (12.8%%)	30 (46.9%)	41 (27.3%)
35-39	6 (7%)	17 (26.5%)	23 (15.4%)
40-45	10 (11.6%)	5 (7.8%)	15 (10%)
Total	86 100%	64 100%	150 100%

Chi square = 48,22 P-value = <0.0001 (significant)

Table (3)revealed that the most frequent cases of infertility cases came from unemployed(66.7%)**. Most frequent cases of primary and secondary infertility cases came from unemployed women (66.3%, 67.2% respectively).**

Table (3) Distribution of infertile women according to occupation

Women's occupations	Primary infertility No. %	Secondary infertility No. %	Total No. %
Employed	**29 (33.7%)**	**21 (32.8%)**	**50 (33.3%)**
Unemployed	**57 (66.3%)**	**43 (67.2%)**	**100 (66.7%)**
Total	**86 (100%)**	**64 (100%)**	**150 (100%)**

Chi-square=0.014 p-value=0.970 (insignificant)

Table (4)revealed that the most frequent cases of infertility cases came from women with normal weight (BMI=18-24 Kg/M^2)(51.3%) followed by women with overweight (25-29 Kg/M^2 **)(34%). Most frequent cases of primary and secondary cases came from normal weight women (60.5%, 39.1% respectively) with a significant difference.**

Table (4) Distribution of infertile women according to BMI

BMI Kg\M2	Primary infertility No. %	Secondary infertility No%	Total No. %
18-24 (normal)	52 (60.5%)	25 (39.1%)	77 (51.3%)
25-29(over weight)	28 (32.5)	23(35.9%)	51 (34%)
30-<40 (obese)	6 (7%)	16 (25%)	22 (14.7%)
Total	86 (100%)	64 (100%)	150 (100%)

Chi-square=11.52 p-value =0.0031 (significant)

Table (5)revealed that the most frequent cases of infertility cases came from women with negative family history(56%)**. Most frequent cases of primary cases came from women with positive family history (53.5%) while those secondary infertility came from women with negative family history(68.7%) and there is a significant difference.**

Table (5) Distribution of infertile women according to family history.

Family History	Primary infertility No. %	Secondary infertility No%	Total No. %
Positive	46 (53.5%)	20 (31.3%)	66 (44%)
Negative	40 (46.5%)	44 (68.7%)	84 (56%)
Total	86 (100%)	64(100%)	150 (100%)

Chi-square=6.654 p-value= 0.007 (significant)

Discussion

In the current study the frequency of infertility among reproductive age women was (25%). This result is higher than that found in Iran (22%)[22], India (12%) [16]and Saudi Arabia (18.93%)[28].

It has been documented that the primary infertility cases were more frequent (57.3%)than secondary infertility cases (42.7%). This results agree with results of a study done in Baghdad in year 2015[13] and study done in Egypt[23].On the contrary a study in Nigeria it has been found that secondary infertility cases were more frequent than primary infertility cases (77%), (22% respectively)[19].

The most frequent cause of infertility in the current study was PCOS (53.3%) followed by other ovulatory causes (23.3%) , so in general the ovulatory factors are the most frequent cause of infertility(76.6%) of causes. This results agree with study results reported in Baghdad and Egypt(Alexandria)[13,23] while in Nigeria ,it has been reported that the most frequent cause of infertility were tubal factors ,uterine factors ,and ovarian (39.5%,30%,and 13% respectively [19].

It has been documented in this study that most frequent cases were among age group (20-24 years and 30-34 years) (27.3% for each of them). In other studies the most frequent infertile cases were among women with age group over 30 years in addition our result was lower to that reported by these studies as in India, Baghdad, Nigeria (59%,30%and 31.5% respectively)[21, 13 ,19].

Regarding the employment factor on frequency of infertility cases distribution in the current study, it has been documented that the most frequent cases of infertility were among unemployed women(66.7%) and this result was applied on primary and secondary infertility cases. This results agree with that reported in Iran and Al- Najaf[22,27].

In the current study the high frequency of primary infertility cases among age group (20-24 years) and the high frequency of secondary infertility cases among age group(30-34 years).This differences are attributed to that women with primary infertility seeking for a pregnancy after marriage while those with secondary infertility may have children before becoming infertile.

In our study results the most frequent cases of women infertility cases were from normal weight women (51.3%) followed by those from over weight women(34%). This results agree to results obtained by studies done in India, Baghdad and Turkey[21,13,14]. In China it has been reported that the most frequent cases of women infertility were among underweight women [30].

In our study the most frequent cases of women infertility were from women with negative family history (56%) but according to type of infertility cases the primary infertility cases came from women with positive family history and the reverse of secondary infertility cases. For relation of primary infertility cases and positive family history agree to study results in Egypt, Basra and Al-Nagaf [23,25,27]. This result can be attributed to effect of genetic factors in causing primary women infertility.

Author's contributions:Both authors played a key role in carrying out the study to conductive outcome. All authors were involved in the study design ,data analysis,data collection,implementation of research and in the critical revision the final approval of manuscript.

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References

1. Mulchopadhyay S. Morris E, Arulkamoran S. Text book of gynecology and obstetrics. United State Of America, Oxford University press department of oxford university.2014:210-215.
2. Afroughi S, Pouzesh M .Prevalence and risk factors in sample of Iran couples .Biometrics and Biostatics Journal.2018;3:29-37.
3. Gabbar AA, Omron EF, Abdullah AA ,Kolb MM ,Farad EZ, et al. Prevalence of sexual dysfunction in infertile couples. Eur J obstetrical and gynecology report Biol;2017:32-45.
4. Pundir J, Coomarasamy A . In: United Kingdom by Bill and Bain Ltd. Gynecology Evidence –Based Algorithims.Vol.1. Cambridge university company ; 2016 :100-107.
5. Padubidri VG, Daftry S N. The pathology of conception . Howkines and Bourne Show s Textbook of gynecology . 15th edition. New Delhi: Elsevier ,Adivision of Reed Elsevior India Private Limited ; 2011: 197-220.
6. Edmond K. Female infertility ,In : DEUHURTS Text book of Obestetrics and gynecology. 7thedition . London Blackwell publishing:2007:440-445.
7. Hull M. Epidemiology of infertility and poly-cystic ovarian disease: endocrinological and demographics studies .Gynecologic Endocrinal Journal; 2010;1:235-245.
8. AL-Kaatan S A, Mohammed R A. Laparoscopic findings and Chlamydia Trachomatis Infection in Infertile women .Tikrit Medical Journal ;2013 ;19:315-324.
9. El Moseley MH ,Hussein MH. Prevalence of reproductive tract infections among married women of reproductive age . FertilSteril journal; 2008;23:543-546.
10. Sami N, Ali TS, Wssim S ,Salem S. Risk factors of secondary infertility among women in Pakistan .OLOS ONE,2012;7:123-27.
11. Secure HA. Epidemiology clinical manifestation and path physiology of polycystic ovary syndrome .Advanced study medical Journal ;2003;10:733-

739.

12. Boomsma CM, Fuser BC, Macklin NS. Pregnancy complications in women with polycystic ovary syndrome .reprod. Med. Journal;2008;26:72-84.
13. Elea HR, Abdul-Karmic ET,AL-Salami AR. Study the Occurrence of Polycystic Ovarian syndrome Among Infertile Women .The Iraqi of post graduate Medical Journal .2015;14:329-333.
14. Dog OZ, Deltas BS. Impact of obesity of infertility in women .Journal of Turkish German Gynecology Association .2015:16;111-117
15. Jamaal MS , Zaire HB , Jahromi RA .The relationship of body mass index and women's infertility .Iran Journal Reprod Media .2014;12 :189-198.
16. Chatterer S , Modi D, Maître A. Screening for gene mutation in women with premature ovarian failure ;an Indian experience .Reprod Biomed on line .2009;15:554-560.
17. Aziz N. Laparoscopic evaluation of female infertility .Jcoll Physician surge Pak ;2010;10:649-652.
18. Sami N ,Ali TS, Wisam S, Saleem s. risk factors for secondary infertility among women in Pakistan . Plos One ;2010;7:33-38.
19. Suli J, ErigbaliP ,Erum L. Prevalence of infertility in women in a southwestern Nigerians Community .African Journal of Biomedical Research ,2008;1:225-227.
20. Maheshwari A, Bhuttacharya S, Hamilton m .Effect of female age on infertility . Hum Reprod.2010;3:538-543.
21. Mallikarjuna M ,Rajeshwari B. Selected risk factors in female infertility in India .International Journal Of reproduction .2015;4:1714-1719.
22. Solaiman A, Mehran P. Prevalence and Risk Factors of Infertility in a sample of Iranian Couples .Journal of Biometrics and Biostatics.2018;9:201-212.
23. Mukhtar S, Hassan HA, Mahdy N, Elkhosky F, Shehta G, Risk factors for primary and secondary female infertility in Alexandria .Journal Of Medical Research Institute.2006;27:255-261.
24. Ganitha G, Bumckar S, Vaneswari J. Association of ABO Blood groups and infertility in India. International Journal of health science and research .2012;2:72-80.
25. Jarallah HM. Trichomonas virginals infections among women in Basrah Marshes villages south of Iraq .Egyptian Journal Society of experimental biology .2013;1:71-74.
26. Al-Tae HA. Risk factors for premature ovarian failure in women from Babylon \Iraq .Medical Journal of Babylon .2014;11:131-140.
27. Abdullah AM, AL-Ogaili SS. Risk factors of infertility among young women at AL-Najaf city. International Journal of scientific and research publications.2016;6:22-30.
28. Al-Turkey A, Haifaa A. Prevalence of primary and secondary infertility from tertiary center in eastern Saudi Arabia. Middle East Fertility Society Journal.2015,2:1-4.
29. Hoddigheh K, Tehrani FR, Gandevani SB, Khalili D, Azizi F. The prevalence and causes of primary infertility in Iran Global Journal of Health Science .2015,7:226-231.
30. Cong J, Pingping L, Zheng l, Tam J. Prevalence and Risk factors Of Infertility in Northern China .PLoS One Journal ; 2016;11:1-10.