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EVALUATION OF MALE INFERTILITY IN NINEVEH PROVINCE

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ABSTRACT
This study is an attempt to identify the effect of certain risk factors of male infertility in Mosul city. To achieve the aim of this study, A case control study design was adopted. A total of [100] cases of male infertility were collected from Al –Batool infertility clinic, while the control group include [100] fertile man. The controls were matched according to age group [< 25 years, 25 – 34 years, 35 – 44 years, > 45 years]. The study period extended from April 2023 through September 2023. It was found that heavy smokers has a significant association with male infertility, also there is a significant association between inguinal hernia repairing and genital infection with male infertility. There is a deterioration in sperm quality of infertile patients with progression of infertile patients' ages. Primary infertility is more common than secondary infertility in the study infertile cases. Seminal fluid analysis was performed in Al-Batool infertility clinic for 25 cases and 25 controls and comparism of the test results was done for the two groups using the following parameters :- Sperm count, sperm motility, sperm morphology and indicators of seminal fluid infections (pus cells, red blood cells, germinal cells and others). It was found that the most frequent semen abnormalities involving sperm count, sperm activity and seminal fluid infection.

KEYWORDS: There is a deterioration in sperm quality of infertile patients with progression of infertile patients' ages.

INTRODUCTION

Infertility is defined as inability to conceive after at least one year of unprotected intercourse. In younger patients, or in those in whom regular sexual exposure is doubted some clinicians delay the active investigation and treatment of infertility for up two years. Infertility should be differentiated from sterility, which is an absolute state of inability to conceive, or intrinsic inability to achieve pregnancy. primary infertility: When there is no history of pregnancy having occurred, despite normal regular sexual relation. Secondary infertility: When there is a previous conception, but the couples are subsequently unable to conceive despite normal regular sexual relation for six months from previous conception.

Risk factors of male infertility

Age, Sexually Transmitted diseases (STD),Trauma to genitalia, Smoking, Alcohol, Occupational hazard, Drugs, Mumps after puberty, Food and nutrition, Exercise, Type of pants, Hernia repair, Delayed puberty.

AIM OF THE STUDY

The present study aims to evaluate risk factors of male infertility among a sample of Iraqi males in Mosul city.

PATIENTS AND METHODS

To achieve the aim of the present study, 100 infertile cases and 100 fertile controls were interview in a case control study design was chosen. Cases were defind as those male who are currently married and unable to conceive after at least one year of unprotected sexual intercourse. In younger persons or in those in whom regular sexual exposure is doubtful this duration is extended for up to two years. The study was conducted over a period of seven months from March 2005 through September 2005.

RESULTS

Table 1: Demographic determinant of study population.

Age group in years	Case		Control		P-value*
	No.	%	No.	%	
< 25 years	6	6	8	8	1
25 – 34	43	43	42	42	
35 – 44	41	41	41	41	
45 – 54	10	10	9	9	
Total	100	100	100	100	
Mean age ± SD	25 ± 19.7		25 ± 19.06		
Residence	Case		Control		P-value**
	No.	%	No.	%	
Urban	67	67	72	72	0.44
Rural	33	33	28	28	
Total	100	100	100	100	
Occupation					
Employed	78	78	81	81	0
Unemployed	22	22	19	19	
Total	100	100	100	100	

* t-test was used ** X^2 test was used

Table 2: Duration and type of infertility among male infertility cases.

Duration of infertility	Case	
	No.	%
< 5 years	54	54
5 - 9 years	28	28
≥ 10	18	18
Total	100	100
Type of infertility		
Primary infertility	86	86
Secondary infertility	14	14
Total	100	100

Table 3: Association of residence and male infertility.

Residency	Case		Control		O.R	95%CI	P-value*
	No.	%	No.	%			
Urban	67	67	72	72	0.7	0.25 – 0.52	.044
Rural	33	33	28	28			
Total	100	100	100	100			

Table 4: Association of employment status and male infertility.

Employment	Case		*Control*		*O.R*	*95% CI*	*p-value **
	No.	%	No.	%			
Employed	78	78	81	81	0.8	0.70 – 0.91	0.59
nemployed	22	22	19	19			
Total	100	100	100	100			

* X^2 test was use

Table (5): Association of different types of occupation and male infertility.

Type of occupation	Case		Control		OR	95%CI	P-value*
	No.	%	No.	%			
Working in welding	1	1.2	1	1.2	1.03	-	-
Bakering	3	3.8	1	1.2	3.2	1.01-10.3	0.31
Driving	12	15.3	5	6.1	2.7	8.05-1.7	0.07
Textile industry	2	2.5	1	1.2	2.1	24.6-5.54	0.56
Agricultural working	35	44.8	48	59.2	0.5	0.63-12.44	0.06
Self employed	23	29.4	25	30.8	0.9	0.48-0.59	0.74
Other	2	2.5	-	-	-	-	0.155
Total	78	100	81	100	-	-	-

* X^2 test was used

Table 6: Association of Cigarette smoking and male infertility.

Smoking status	Case		*Control*		*O.R*	*95%CI*	*P-value**
	No.	%	No.	%			
smokers	53	53	48	48	1.2	1.99 – 1.38	0.47
Non smokers	47	47	52	52			
Total	100	100	100	100			

* X^2 test was used

Table 7: **Association of different categories of cigarette smoking and male infertility.**

Smoking categories	Cases		Controls		OR	95% C.I	P-Value*
	No.	%	No.	%			
Heavy smoker**	26	26	9	9	4.3	2.38 – 41.01	0.006
Moderate smoker***	10	10	17	17	o.5	0.22 – 0.90	0.33
Mild smoker****	17	17	22	22	0.7	0.30 – 0.61	0.05
Non smoker	47	47	52	52			
Total	100	100	100	100			

* X^2 test was used
**Heavy smokers (>20 cig./day for 5 years).
***Moderate smokers (11-20 cig./day for 5 years).
****Mild smokers (1-10 cig./day for 5 years).

Table 8: Association of alcohol consumption and male infertility.

Alcohol consumption	*Case*		Control		O.R	95%CI	P-value*
	No.	%	No.	%			
Drinker	7	7	5	5	**1.2**	**0.17 – 0.06**	**0.55**
Non drinker	93	93	95	95			
Total	100	100	100	100			

* X^2 test was used

Table 9: Association of hernia repairing and male infertility.

Hernia repairing	*Case*		Control		O.R	95%CI	P-value*
	No.	%	No.	%			
Present	9	9	2	2	4.8	19.69 -1.15	0.02
Absent	91	91	98	98			
Total	100	100	100	100			

* X^2 test was used

Table 10: Association of genital infection and development of male infertility.

History of Genital infection	*Case*		Control		O.R	95%CI	P-value*
	No.	%	No.	%			
Present	19	19	4	4	**5.6**	**16.01-1.95**	**0.0008**
Absent	81	81	96	96			
Total	100	100	100	100			

Table 11: Distribution of study population according to sperm count.

Sperm count	Case		Control		p-value*
	No	%	No	%	
< 20000000 /ml	17	68	2	8	0.00001
> 20000000 /ml	8	32	23	92	
Total	25	100	25	100	

Table 12: Distribution of study population according to sperm activity.

Sperm activity	Case		Control		p-value*
	No.	%	No.	%	
Inactive sperm	23	92	2	8	0.0
Active sperm	2	8	23	92	
Total	25	100	25	100	

Table 13: Distribution of study population according to sperm morphology.

Sperm morphology	Case		Control		p-value*
	No.	%	No.	%	
Abnormal morphology	12	48	1	4	0.0003
Normal morphology	13	52	24	96	
Total	25	100	25	100	

* X^2 test was used

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Table 14: Distribution of study population according to the presence or absent of seminal fluid infection.

Seminal fluid infection	Case		Control		p-value*
	No.	%	No.	%	
Present	9	36	2	8	0.01
Absent	16	64	23	92	
Total	25	100	25	100	

* X^2 test was used

DISCUSSION

The results of the present study showed, that most of cases attending Al-Batool infertility clinic are (25–34) years old. The present study showed the higher proportion of the patients (86 %) were having primary infertility and (14 %) were having secondary infertility, This may indicate that the incidence of secondary infertility is always lower than primary infertility among Iraqi infertile males and this may also be explained because patients with secondary infertility may not seek medical consultation because they already have children.

Regarding duration of infertility the present study indicated that, 54 % of cases had < 5-years and 18 % of cases had > 10 years duration, this may be explained by the effect of appropriates treatment prescribed to the patients which will lead to elimination of the seminal fluid infection with decrease in concentration of leukocyte and phagocyte in semen with resultant improvement in sperm motility. The study showed that there was no significant or causally related association with residence, that not all patients coming from rural area were necessarily working in agriculture, since agricultural work is considered as a risk factor of male infertility. The study did not find a significant association between certain occupations or and infertility, This difference in the finding may be attributed to the study design or sample size. The present study showed a significant association (P=0.006) between heavy smoking and development of male infertility where heavy smokers were (4.3) times more prone to develop infertility than nonsmokers. The present study showed no significant association of male infertility and alcohol consumption. Probably alcohol intake is forbidden in an Islamic society like Iraq, and even if it is present it is considered as a social stigma so most of patients did not mention its use explicitly. The present study showed that there was significant association (P=0.02) between inguinal hernia repairing and male infertility. this was attributed to obstruction of vas deference incidence of unilateral vas deference obstruction caused by inguinal hernia repairing was 27% among infertile patients with history of childhood hernia repairing. In the present study a significant association (P =0.008) was reported between genital infection and infertility, suggested that infection of genital tract may lead to anatomical obstruction, initiation of leukocyte response and deviation of antisperm antibodies which may result in male infertile. the most frequent semen abnormalities seen are sperm activity, sperm count, seminal fluid infection and sperm morphology.

CONCLUSION

The present study concluded the following.

1-There is a deterioration in sperm quality of infertile patients with progression of infertile patients' ages.

2- Primary infertility is more common than secondary infertility in the study infertile cases.

3-Heavy smoking appeared to be significant risk factor associated with male infertility, Inguinal Hernia repairing, genital tract infections are the most important risk factors of male infertility.

4-The most prevalent abnormalities of sperm function tests in the study infertile cases are sperm activity, sperm count and seminal fluid infection.

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