Establish Growth Curve in Light of Body Mass Index for Infertile Women in Baghdad City

بناء منحنى النمو في ضوء قياس كتلة الجسم للنساء العقيمات في مدينة بغداد

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المستخلص :

الهدف: بناء منحنيات نمو لعينة من النساء العقيمات وتقييم القياسات الجسمية لهن.

المنهجية: دراسة وصفية اجريت في مستشفى كمال السامرائي / مركز الخصوبة وعلاج العقم واطفال الأنابيب للفترة من ١٥ كانون الأول ٢٠١٢ ولغاية ١٥ نيسان ٢٠١٣ ، لبناء منحنيات نمو في ضوء القياسات الجسمية لعينة من النساء العقيمات في مدينة بغداد. اختيرت عينة غير احتمالية (غرضية) شملت (١٠٠) امراءة عقيمة يراجعن مستشفى كمال السامرائي / مركز الخصوبة وعلاج العقم واطفال الأنابيب. جمعت المعلومات من خلال استخدام استبانة مصممة ومكونة من جزئين، الجزء الأول يتكون من خمسة فقرات شملت البيانات الديموغرافية ، الجزء الثاني يتكون من اربعة فقرات بخصوص الحالة الأنجابية . أستخدمت اجراءات التحليل الاحصائي الوصفي (التكرارات، النسبة المئوية، معامل الأرتباط المعياري، الأنحدار المتعدد الحدود النموذجي).

النتائج : كشفت النتائج بأن النساء العقيمات كلما تقدمن بالعمر اي ازدادت مدة العقم قلت قياساتهن الجسمية وذلك يعزى الى معرفتهن بتأثير السمنة والوزن الزائد على تفاقم العقم وقلة حدوث فرصة الحمل والأنجاب.

التوصيات : أوصت الدراسة بضرورة متابعة النساء العقيمات لأوزانهن وعدم تخطي الحد الطبيعي لكي لايكون الوزن هو سبب رئيسي للعقم.

Abstract:

Objective: To establish growth curve for a sample of infertile women and to assess Body Mass Index.

Methodology: Non-probability (purposive sample) of (100) infertile women, who visit Kamal Al-Samaraee Hospital/ fertility and IVF center . The data are collected through the use of constructed questionnaire, which consists of two parts. Part 1: consists of (5) items about demographic characteristics, part 2: consists of (4) items about reproductive status, descriptive statistical analysis procedures (frequency, percentage, Contingency coefficients, polynomial cube order).

Results: Revealed that the infertile women in the study group had decrease in their Body Mass Index with aging (with increase of infertility duration) and that related to their knowledge about the effect of obesity on their condition and decrease the chance for pregnancy and reproduction.

Recommendations: the study recommended that all the infertile women should be maintenance their weight and become within normal rang to avoid the infertility due to obesity.

Keywords: Growth Curve, infertile women, Body Mass Index, therapeutic intervention for infertility.

Introduction:

Infertility is a worldwide problem which has profound social and emotional implications for the individuals concerned. According to WHO, between 8 to 12% of all couples or 50 to 80 million people worldwide experience some form of infertility during their reproductive lives. Infertility is a major medical and social preoccupation since the dawn of human existence and women have always been the symbol of fertility. The incidence of infertility varies around the world. Overall, some 84% of couples are estimated to conceive naturally within a year of attempting pregnancy, when having frequent sexual intercourse. Some 92% of all couples conceive naturally within a two year period. The remaining 8% are considered infertile Since antiquity, couples have been prolific and difficulty with conception was a real problem [٢]. Weight loss and treatments to treat underlying health problems such as polycystic ovary syndrome may reverse obesity-related infertility[٣]. Obesity is a rapidly growing worldwide phenomenon. The World Health Organization (WHO) estimates that 1.6 billion people worldwide are overweight [body mass index (BMI) between 25-29.9 kg/m2] and 400 million are obese (BMI. 30 kg/m2; Rates of obesity in the developing world have tripled in the last two decades [٤].

In the united stated of America and united kingdom more than half of all women are either overweight or obese and many are of reproductive age [٥] Fertility can be negatively affected by obesity. In women, early onset of obesity favors the development of menses irregularities, chronic oligo-anovulation and infertility in the adult age. Obesity in women can also increase risk of miscarriages and impair the outcomes of assisted reproductive technologies and pregnancy, when the body mass index exceeds 30 kg/m. The main factors implicated in the association may be insulin excess and insulin resistance. These adverse effects of obesity are specifically evident in polycystic ovary syndrome [٦].

Methodology:

A deceptive study was conducted to application of BMI calculator for infertile women non probability (purposive sample). Prior to collection of the data, formal administrative approval was obtained to conduct the study from: Permission obtained from Kamal Al-Samaraee Hospital /fertility & IVF centre to collect the data through the application of questionnaire to the sample. The study sample consists of (100) infertile women who were selected from Kamal Al-Samaraee Hospital. The study sample was calculated their BMI through measures the height and weight of each infertile women in this sample; the criteria of this sample was infertile women in reproductive age, with different educational levels, who were seeking counseling for diagnosis and treatment for their problem. A questionnaire was constructed through the review of related of literatures, previous studies, the use of information which had emerged of prior assessment; The questionnaire was used as a means of data collection. It comprised of two main parts .The first part presents the demographic data sheet, which was comprised of different items that include general information about infertile women such as: (Age, BMI, educational level , occupation, marriage years).The second part of the instrument consisted of many types of questions which were as follows:(previous pregnancy, previous abortion, previous delivery, contraceptive.

Results:

Table 1. Association between "Basis Information and Socio-Demographical Characteristics "variable and Infertility types with comparison significant

Variables	Groups	Frequency & Percent	Infertility types		Total	Comparison Significant
			Secondary	Primary		
Age Groups	< 20	Freq.	0	2	2	C.C.=0.196 P=0.550 NS
		% Age Groups	0.0%	100%	100%	
		% Infertility types	0.0%	2.6%	2%	
	20 - 24	Freq.	1	15	16	
		% Age Groups	6.3%	93.8%	100%	
		% Infertility types	4.3%	19.5%	16%	
	25 - 29	Freq.	5	15	20	
		% Age Groups	25.0%	75.0%	100%	
		% Infertility types	21.7%	19.5%	20%	
	30 - 34	Freq.	8	23	31	
		% Age Groups	25.80%	74.20%	100%	
		% Infertility types	34.80%	29.90%	31.00%	
	35 - 39	Freq.	8	19	27	
		% Age Groups	29.6%	70.4%	100%	
		% Infertility types	34.8%	24.7%	27%	
	40 >	Freq.	1	3	4	
		% Age Groups	25.0%	75%	100%	
		% Infertility types	4.3%	3.9%	4%	
BMI	Under weight	Freq.	0	1	1	C.C.=0.137 P=0.589 NS
		% BMI	0.0%	100%	100%	
		% Infertility types	0.0%	1.3%	1%	
	Normal weight	Freq.	5	17	22	
		% BMI	22.7%	77.3%	100%	
		% Infertility types	21.7%	22.1%	22%	
	Over weight	Freq.	11	45	56	
		% BMI	19.6%	80.4%	100%	
		% Infertility types	47.8%	58.4%	56%	
	Obese	Freq.	7	14	21	
		% BMI	33.3%	66.7%	100%	
		% Infertility types	30.4%	18.2%	21%	
Education Level	illiterate	Freq.	2	2	4	C.C.=0.251 P=0.242 NS
		% Education Level	50%	50%	100.0%	
		% Infertility types	8.7%	2.6%	4%	
	Read &write	Freq.	0	1	1	
		% Education Level	0.0%	100%	100%	
		% Infertility types	0.0%	1.3%	1%	
	Primary school	Freq.	12	33	45	
		% Education Level	26.7%	73.3%	100%	
		% Infertility types	52.2%	42.9%	45%	
	Intermediate school	Freq.	3	29	32	
		% Education Level	9.4%	90.6%	100%	
		% Infertility types	13.0%	37.7%	32%	
	Secondary school	Freq.	4	8	12	
		% Education Level	33.3%	66.7%	100%	
		% Infertility types	17.4%	10.4%	12%	
	Higher education	Freq.	2	4	6	
		% Education Level	33.3%	66.7%	100%	

Table 1. Continues

Occupation	Employee	Freq.	5	12	17	C.C.=0.069 P=0.490 NS
		% Occupation	29.4%	70.6%	100%	
		% Infertility types	21.7%	15.6%	17%	
	Non-Employee	Freq.	18	65	83	
		% Occupation	21.7%	78.3%	100%	
		% Infertility types	78.3%	84.4%	83%	
Married years	1 - 2	Freq.	7	34	41	C.C.=0.159 P=0.274 NS
		% Married years	17.1%	82.9%	100%	
		% Infertility types	30.4%	44.2%	41%	
	3 - 4	Freq.	11	35	46	
		% Married years	23.9%	76.1%	100%	
		% Infertility types	47.8%	45.5%	46%	
	5 - 6	Freq.	5	8	13	
		% Married years	38.5%	61.5%	100%	
		% Infertility types	21.7%	10.4%	13%	

HS: Highly Significant at P<0.01; S: Significant at P<0.05 ;NS : Non Significant at P>0.05,P: Probability level, CC: Contingency Coeff.'s ,% : percent

Table (1) demonstrates that the highest percentage of the study sample (31%) were in age group of (30-34) years, (56%) their body mass index were overweight, (45%) is primary school graduate, (83%) of them is housewives (un employed), (46%) of them is having (3-4) years of marriage.

Table 2. Association between "Basis Information of Pregnant Characteristics" variables and Infertility types with comparison significant

Variables	Groups	Freq. & Percent	Infertility types		Total	Comparison Significant
			Secondary	Primary		
Previous Pregnant	Yes	Freq.	21	4	25	C.C.=0.642 P=0.000 HS
		% Previous Pregnant	84%	16%	100%	
		% Infertility types	91.3%	5.2%	25%	
	No	Freq.	2	73	75	
		% Previous Pregnant	2.7%	97.3%	100%	
		% Infertility types	8.7%	94.8%	75%	
Previous Abortion	Yes	Freq.	13	4	17	C.C.=0.498 P=0.000 HS
		% Previous Abortion	76.5%	23.5%	100%	
		% Infertility types	56.5%	5.2%	17%	
	No	Freq.	10	73	83	
		% Previous Abortion	12%	88%	100%	
		% Infertility types	43.5%	94.8%	83%	
Previous delivery	Yes	Freq.	9	0	9	C.C.=0.499 P=0.000 HS
		% Previous delivery	100%	0.0%	100%	
		% Infertility types	39.1%	0.0%	9%	
	No	Freq.	14	77	91	
		% Previous delivery	15.4%	84.6%	100%	
		% Infertility types	60.9%	100%	91%	
Contraceptive	Yes	Freq.	3	4	7	C.C.=0.128 P=0.195 NS
		% Contraceptive	42.9%	57.1%	100%	
		% Infertility types	13.0%	5.2%	7%	
	No	Freq.	20	73	93	
		% Contraceptive	21.5%	78.5%	100%	
		% Infertility types	87.0%	94.8%	93%	

HS: Highly Significant at P<0.01; S: Significant at P<0.05 ;NS : Non-Significant at P>0.05,P: Probability level, CC: Contingency Coeff.'s ,% : percent

This table shows the highest percentages (75%) which is for no any previous pregnancy, while (83%) of them no have previous abortion, (91%) which is for no previous delivery and (93%) of the study sample which is for not using contraceptive methods.

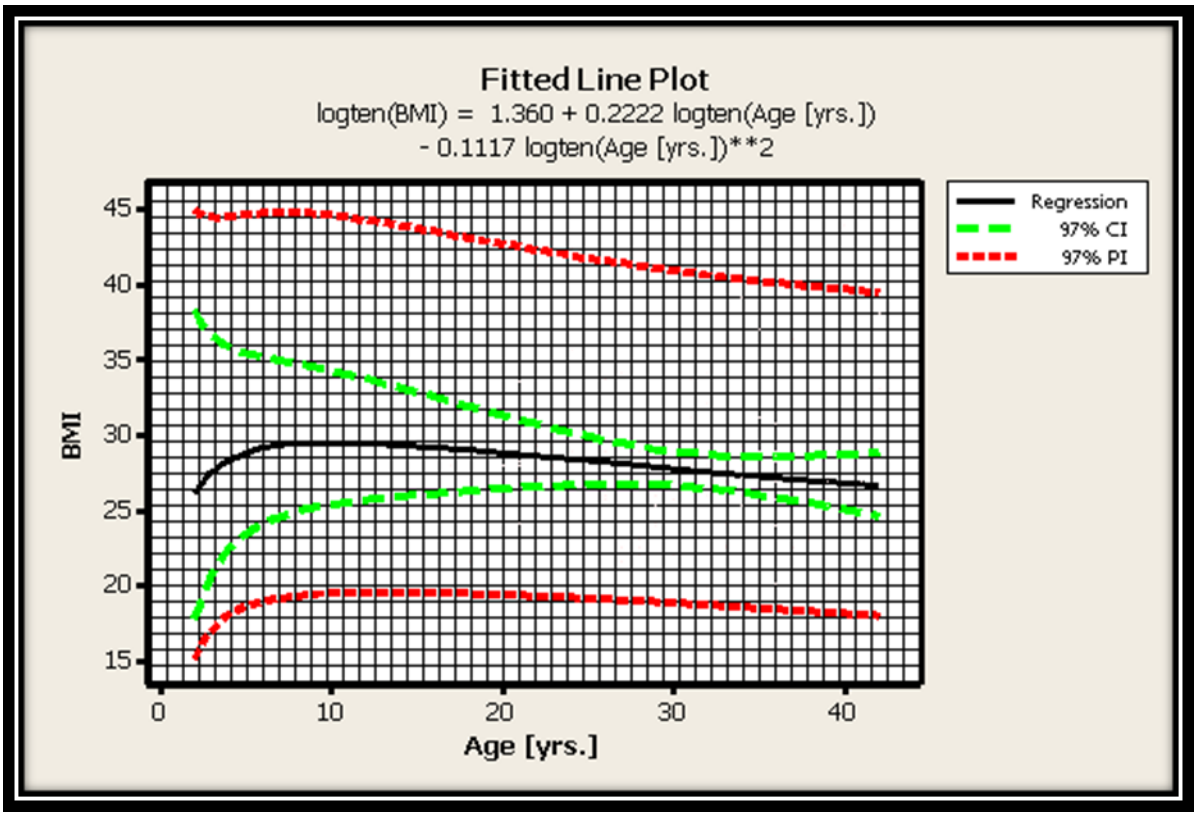

Figure 1. Polynomial cube order regression equation of "BMI" having common logarithmic transformation of infertility type's women

The regression (black line) refers to the standard BMI of infertile women, PI (red line) refers to the abnormality of the BMI (over weight and underweight) while CI (green line) refers to BMI of infertile women in this study. So the BMI of infertile women in this study decreased with aging.

Discussion:

Description of women's demographic characteristics shows that the highest percentage (31%) is in age group of (30-34) years in infertile women. A new study concludes, female fertility starts to fall off gradually around age 27 before dropping more dramatically after age 35. The findings suggest that older would-be parents may have to wait longer before becoming pregnant which is in agreement with the current study [٧]. Rresults in the (table 1) show that (56%) of infertile women their body mass index were overweight, There are significant differences between BMI categories. Even women who regularly ovulate experience sub-fertility when their BMI (body mass index) is in the overweight or obese category. In layman's terms, they found that women with regular cycles, and otherwise no obvious fertility problems, still have a hard time getting pregnant if they are overweight. They also found that the more overweight the woman, the lower her chances of pregnancy. The study looked at a group of women who were defined as being sub-fertile. They looked at the relationship between their difficulty becoming pregnant, and their BMI. A normal BMI is considered to be between 18.5 - 24.9. Anything over 25 is considered to be overweight, and a BMI over 30 is defined as obese with BMI's between 35 to 40, had a 23% to 43% less chance of achieving pregnancy compared to the below 29 BMI women. In this study (45%) is primary school graduate [8]. In a test of the minority group status hypothesis, this study examines the effect of intergenerational educational mobility on the fertility of black and white women. Regression analysis of data from the National Survey of Family Growth provides only limited support for the hypothesis that upwardly mobile black women have lower fertility than their white counterparts[٩]. The main finding is that the parity of upwardly mobile black women is influenced more strongly by educational origins (parents' education) than is the parity of upwardly mobile white women.

Thus, future studies should consider the effects of social origins on racial differences in fertility.

In this study, (83%) is not employed. A study from Australia identified occupations at risk to include transport workers, building industry workers, motor mechanics, farmers and miners. In this study the highest percentage of marriage years were (46%) at (3-4) years of marriage. A couple can grow and have a stronger marriage or even end up in such turmoil and heartache that the marriage will end due to infertility problems. These effects on a marriage can be seen in the strong feelings of anger, guilt and feeling completely powerless to make a dream a reality that any couple dealing with infertility will exhibit. Infertility can ravage a marriage but it doesn't always have to. There are many things that a couple do to help the marriage survive an infertility problem. The effects of infertility should never ever be taken lightly.

Infertility and its effect on a marriage can be one of the life's biggest challenges and should be treated as such. (75%) were not have any previous pregnancy, while (83%) of them no have previous abortion, (91%) no have previous delivery and (93%) of the study sample were not use contraceptive methods [10].

Recommendations:

1. BMI decrease with increasing of age (duration of infertility) and that is good and related to the awareness of infertile women regarding the effect of increase BMI on the ability to conceive and pregnancy and every women with infertility should be have a normal BMI.
2. Every infertile woman should be persisting on exercises and eating healthy and low calorie diet.

3. All the infertile women should be educate here self about the effect of obesity on fertility and for this reason the infertile women should be maintain here weight within normal.

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