RESEARCH ARTICLE

IMPACT OF MATERNAL AGE AND PARITY IN INCIDENCE OF PLACENTA PREVIA

*Dr. Itedal Abdelraheem Mohamed Ahmed

Najran University, Faculty Medicine, Department of Anatomy

ARTICLE INFO	ABSTRACT
	This study comprises two designs the first one is a community-based descriptive cross-sectional qualitative study conducted in Saudi and Alshikh Mohamed Ali Fadul Hospital in Omdurman, Sudan as well asNajran University Hospital, Kingdom Saudi Arabia (KSA)to study theimpact of maternal age and parity in incidence of placenta previa. The aim of the study, to correlate the maternal age and parity with placenta previa. The relationship between age and parity in Sudan and KSA. The Pearson correlation 0.718 in Sudan is strongly and 0.249 in KSA its middle level correlation and P value 0.000 is significant in both countries . The correlation between age and parity with placenta previam, showed a positive Pearson Product Moment correlation of between 0.257 for age andplacenta previa(PP) in Sudan and 0.071 in KSA. This relationship is quite high, which suggested a fairly strong relationship in Sudan and weakly in KSA may be to a few number of age group patient between 30 and 40 years and older which is common related to placenta previa (PP). The correlation is significant at the 0.05 level (2-tailed). The conclusion of the study, thematernal age and parity represent the impact factor of incidence ofplacenta previa (PP).

INTRODUCTION

Placenta previa complicates approximatelyabout 0.25-0.5% of pregnancy (Trivijitsil, 2005 and Ratanasiri, 2008). This condition is amajor cause of third-trimester bleeding, postpartumhemorrhage, as well as maternal and neonatalmorbidity and mortality (Sheiner *et al*., 2001; Grobman *et al*., 2007; Gilliam, 2002 and Zlatnik, 2007). The sharp rising rate in cesarean section (Grobman, 2007 ; Faiz, 2003 and Swadpanich, 2004) advanced maternal age (Claeary-Goldman, 2005), and induced abortionwere recognized in the past decade. These factorsmay contribute to the increase incidence of placentaprevia. In previous studies, several risk factors for placenta previa were acknowledged such as advanced maternal age, high parity, previous cesarean section, previous abortion, smoking, assisted reproductive technology and male newborn (1:23). The strength of this connection varies from study tostudy. Risk factors for placenta previa (PP), included maternal age over 35 years, adjusted risk ratios RRs= 1.78 (Matsuda, 2011). Another study there were 457 cases of PP. (1.2%) among the 37,702 pregnancies analyzed. Risk factors for PP included a maternal age of, or greater than 35 years OR, 2.0 to 2.2; 95% CI, 1.3–3.7 (Hung, 2007).

*Corresponding author: Dr. Itedal Abdelraheem Mohamed Ahmed
Najran University, Faculty Medicine, Department of Anatomy

In another study, the risk factor for PP is maternal age over 35 years OR=1.4 95% CI 1.2-6.6 (Eniola, 2002). The impact of maternal age on the risk ofplacenta previa most likely relates to aging of the uterus andthe effects of repeated pregnancies (Ananth, 1996). *Parijchatt A and Tongswatwong P* are recorded a significant increase inthe incidence of placenta previa in women older than 35years with statistical significance (odds ratio 2.89, 95%CI 1.99-4.19).Women with multigravidity (gravidity $\geq$5) had more than 1.62 fold higher risk for placentaprevia development without statistical significance(odds ratio 1.62, 95% CI 0.74-3.56) *Halima, et al. 2011* reported the 5267 obstetrical admissions as:two hundred twenty six were diagnosed as cases of PP. The overall incidence was 4.2% (n = 5267). Out of these 226 patients, 89 were multipara, 99 weregrand multipara and rest were primigrvidas. One hundred sixty patients had previous history of one ormore caesarean section. From the available data it is concluded that there is an association between incidence of PP with the increase in parity (Table 1). From the other study, the one risk factor for placenta praevia was grand multiparity [OR=2.1 (95% CI 1.6-7.1)]see (Table 2).Birth records of 93 cases with PP complicated 0.73% of all deliveries included in the study (n= 12834). Multiparity was more common in patients with placenta previa 78.5%,P<0.001(Davood, 2008). Also, multiple pregnancies, maternal age under 18 or over 35 years, pregnancy more than 4 times and interval between pregnancies

less than one year, canbe considered as risk factors for high-risk pregnancy (Chaman, 2007). The association between placenta previa andprevious cesarean sections (CS), multiparity,multiple pregnancy and higher maternal age hasbeen documented by various authors (Rose, 1986 and Archibong *et al*., 2001). Women withplacenta previa are at an increased risk ofantepartum hemorrhage and preterm delivery (Lam, 2002), the perinatal outcome is poorer and morbidity isincreased (Lam, 2000). Higher age groups and those with parityof >5 (28.9%) constitute a high proportion ofpregnant women in Oman (Annual Health Report, 2002). The risk of placenta previa is increased with higher gravidity, higher parity, previous lower segment caesarean section, while increasing maternal age and previous abortion had no significant effect (Abu-Heija, 1999).

Table 1. Association of placenta previa with parity

Parity	Number of Cases	Percentage(%) (n = 5267)
1	22	0.417
2	28	0.531
3	51	0.968
>4	125	2.373

P= 0.031

Table 2. Characteristics of casesaccording to number of parity

Parity	No. Cases	Percentage(%) (n = 136)
0	21	15.4
<5	66	48.5
>5	9	36.1

P =0.001

MATERIALS AND METHODS

This study comprises two designs the first one is a community-based descriptive cross-sectional qualitative study conducted in Saudi and Alshikh Mohamed Ali Fadul Hospital (SAMAFH) in Omdurman in Khartoum State, Sudan and in department of Obstetrics & Gynecology Najran University Hospital (NUH), University of Najran Saudi Arabia (KSA) to estimate frequency of occurrence of placenta previaassociated maternal age and parity. All the applicable information pertaining to the study was collected from the records of pregnant women with placenta previa who registered from June 2016 to January 2017. Primary data has been collected through data collecting sheet: questionnaires which include dependent and independent variables. The questionnaires used were designed to capture all qualitative data on indicators which were identified to be used in this study. The completed questionnaires were verified every day and data was entered into a specifically designed SPSS access data base. In the clinics all women were scanned in the third trimester of pregnancy for fetal wellbeing and placental localization after taking detailed obstetrical history and clinical examination. The doctor and staff nurse on duty in the clinic were trained to enter the information in the form.
The practice of examining pregnant women using ultrasound is called obstetric sonography which in modeling 2D and 262×400 (49 KB) dimensions. Obstetric ultrasonography is the use of medical ultrasonography in pregnancy, in which sound waves are used to create real-time visual images of the developing embryo or fetus in its mother's uterus (womb). The procedure is a standard part of prenatal care in many countries, as it can provide a variety of information about the health of the mother, the timing and progress of the pregnancy, and the health and development of the embryo or fetus.

Statistical Methods

Statistical analysis was performed by SPSS-PC statistical software version 20.0 (Statistical Package for the Social Sciences).Correlation between various maternal parameters (maternal age, parity, repeat cesarean section, and previous pregnancy interval) and PP were calculated. Using descriptive frequency crosstabsand correlation probabilities and a P value of p <0.05(2-sided) was studied statistically for significance. A 5% statistical significance level has been used to reject the null hypothesis that there was no evidence of a linear relationship.

RESULTS

Data was collected during the period 2016 - 2017 from 400 pregnant women. This comprises 200 from each unit of obstetrics and gynecology in Alshikh Mohamed Ali Fadul Hospital in Sudan and Hospitals at Najran Kingdom Saudi Arabia. In the antenatal clinics, all pregnant women were scanned in their third trimester of pregnancy for fetal wellbeing and placental localization after taking detailed obstetrical history and clinical examination. The percent of frequencies was calculated to examine the placenta previain Table 3 and Figure 1.

Table 1. Shows the distribution of placenta previa in Sudan and KSA

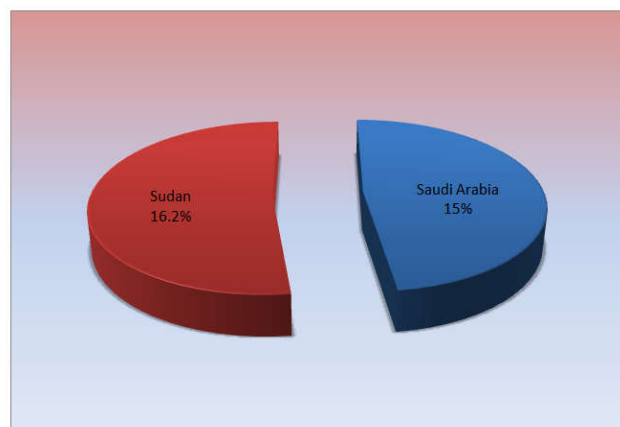| Placenta	Country Frequency		Total frequency %
	Sudan	Saudi Arabia	
Normal	135 (33.8%)	140(35%)	275(68.8%)
Previa	65(16.2%)	60(15%)	125(31.2%)
Total	200(50%)	200(50%)	400(100 %)

(n = 400)

Figure 1. Shows the distribution of placenta previa in Sudan and KSA

Table 4 shows patients were subdivided into 4 age groups: 1) 97 (24.25%) aged more than 20 years, (2) 160 (40.0%) ages (20-29) years, and 3) 119 (29.75%)(20-29) years and 24 (6.0 %) aged 40 years and older. There were 9 (2.25%) and 14 (3.5%) women patient with placenta previa (PP) at first age group in Sudan and KSA respectively. At secondly group were 21 (5.25%) in Sudan and 20 (5.0%) in KSA with PP. There were 143(35.75%) women between the ages of 30 and

40 years and older in Sudan and KSA respectively. Of them 35 (8.75%) and 26 (6.2%) with pp in Sudan and KSA individually and these group age represent risk factor of incidence of placenta previa shows also Fig.2 and 4. Figures 4 and 5 shows relationship between parity and placenta previa in Sudan and KSA respectively. The patient prime gravida in total number 48(12%) in Sudan and32 (8%) in KSA   7(1.75%) and 6 (1.5%) of them with placenta previa individually. The group patient who is number one and two births are 40 (10%) in number and 11(2.75%) related to PP in Sudan compared to 77 (19.25%) and 26 (6.5%) associated with PP in KSA.

0.718in Sudan is strongly and0.249 in KSA its middle level correlation and P value 0.000 is significant in both countries.

DISCUSSION

The incidence of placenta previa at Saudi and Alshikh Mohamed Ali Fadul Hospital and Najran University Hospital was 16.25% and 15.0% respectively. The incidence rate was increased during 1986 and 2011 (0.25 -4.2%).This fact supported by other studies that found genetically and environmental factors responsible for increasing incidences

Table 4. Shows the distribution of age related to placenta previa in Sudan and KSA

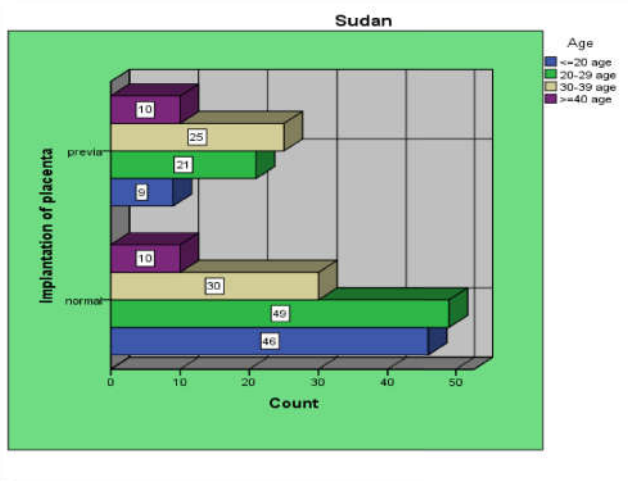| Age					Relative frequency %
	Sudan		Saudi Arabia		
	Without Previa	With Previa	Without Previa	With Previa	
>20	46(11.5%)	9(2.25%)	28(7.0%)	14(3.5%)	97(24.25%)
20-29	49(12.25%)	21(5.25%)	70(17.5%)	20(5.0%)	160(40.0%)
30-39	30(7.5%)	25(6.25%)	40(10.0%)	24(6.0%)	119(29.75%)
>=40	10(2.5%)	10(2.5%)	2(0.2%)	2(0.2%)	24(6.0 %)
Total	135(33.75%)	65(16.25%)	140(35.0%)	60(15.0%)	400 (100%)

Figure 2. Shows the distribution of age related to
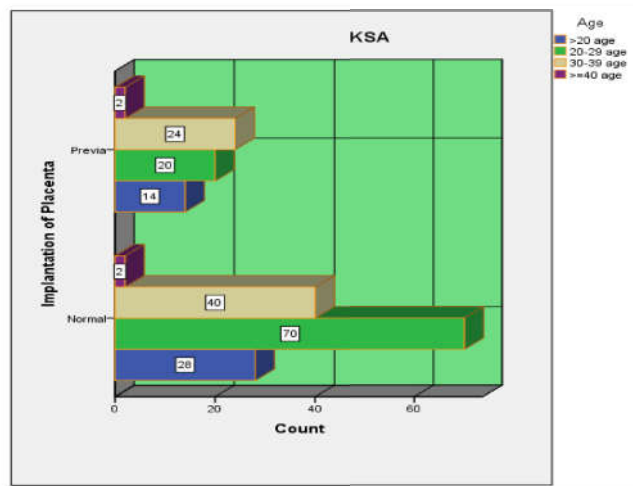placenta previa   in Sudan

Figure 3. Shows the distribution of age related to
placenta previa   in KSA

Table 5. Shows the distribution of parity related to placenta previa in Sudan and KSA

parity					Relative frequency %
	Sudan		Saudi Arabia		
	Without Previa	With Previa	Without Previa	With Previa	
Prime gravida	41(10.25%)	7 (1.75%)	26 (6.5%)	6 (1.5%)	80(20.0%)
One birth	18(4.5%)	4 (1.0%)	43 (10.75%)	14 (3.5%)	79(19.75%)
Two birth	22 (5.5%)	7 (1.75%)	34 (8.5%)	12 (3.0%)	75(18.75%)
Three birth	12 (3.0%)	13 (3.25%)	19 (4.75%)	7 (1.75%)	51(12.75 %)
More than three	42 (10.5%)	34 (8.5%)	18 (4.5%)	21 (5.25%)	115 (28.75%)
Total	135(33.75%)	65 (16.25%)	140 (35.0%)	60 (15.0%)	400 (100%)

Three and more than three births group 54 (13.5%) in number and 47 (11.75%) with PP in Sudan and 37 (9.25%) in KSA 28 (7%) of them with PP showed in Table 5. Table 6 Shows the correlation between maternal age and parity with placenta previa. It showed a positive Pearson Product Moment correlation of between 0.257 for age and PP in Sudan and0.071in KSA. This relationship is quite high, which suggested a fairly strong relationship in Sudan and weakly in KSA may be to a few number of age group patientbetween 30 and 40 years and older which is common related to placenta previa shows in Table 2. The correlation is significant at the 0.05 level (2-tailed). Table 7explain the relationship between age and parity in Sudan and KSA. The Pearson correlation

rate of PP. The purpose of this study to find a relationship between age groups and parity, and associated them with development of placenta previa. It was found that the more progressive relationship of maternal age with parity, and there are numerus of reports in the previous study evaluating the effect ofmaternal age and parity on pregnancy outcomes, but results are differed (Hung, 2007; Ananth, 1996 and Parijchatt, 2011). Current study clearly shownthat women older than 30 years had more than 15.25-fold higher risk for placenta previa development. The distribution concurringto different age groups proved that this is the consequence of significantly higher frequency of women older than 30 years in the study group and at the same time, not significantly lower frequency
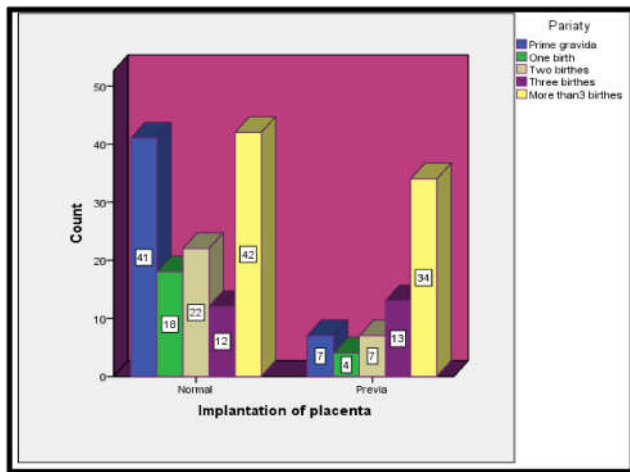
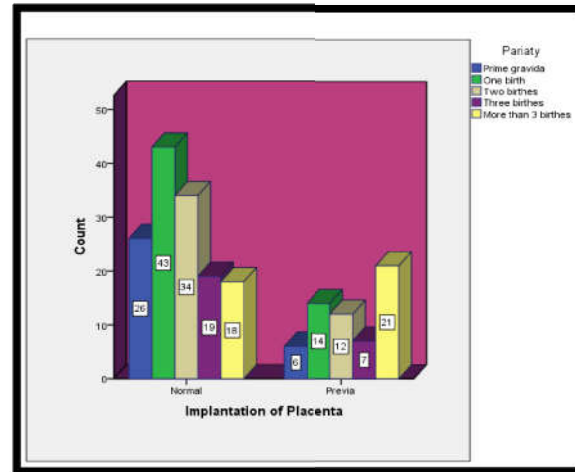**Figure 4 shows association parity and placenta previa in Sudan**

Figure 5 shows association parity and placenta previa in KSA

Table 5. Shows Correlation of maternal age and parity with placenta previa in Sudan and KSA

Placenta previa	Country Correlation			
	Sudan		Saudi Arabia	
	Pearson Correlation	Sig. (2tailed)	Pearson Correlation	Sig. (2-tailed)
Age	*0.257	0.000	0.071	0.317
Parity	*0.289	0.000	*0.227	0.001
* Correlation is significant at the 0.05 level (2-tailed).			* Correlation is significant at the 0.05 level (2-tailed).	

Table 6. Shows Correlation between maternal age and parityprevia in Sudan and KSA

Age	Country Correlation			
	Sudan		Saudi Arabia	
	Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)
Parity	*0.718	0.000	*0.249	0.000
* Correlation is significant at the 0.05 level (2-tailed).			* Correlation is significant at the 0.05 level (2-tailed).	

of women younger than 29 in relationship with placenta previa. Because the group with placenta previa had significantly higher percentage of multiparous women and parity could have a distinguishingeffect on risk associated with maternal age, and adjusted maternal age for different parity groups in agree with the findings recorded by Annual Health Report (Annual Health Report, 2002). Other authors recorded a similar opinion (Hung, 2007 and Eniola *et al*., 2002), with differ maternal age group that was older than 35 in their study group, whilethere were some who could not confirm this (Abu-Heija, 1999), same asin my result in KSA.It was observed that women with placenta previa had significantly higher frequency of women with 3 or more previous pregnancies. In the study of Parijchatt A and Tongswatwong P (Parijchatt, 2009), the parity became important after 5 or more previous pregnancies. Some earlier studies showed that parity became significant after 4 or more previous pregnancies (Davood, 2008 and Chaman, 2007). Since this study from two different countries were similar and that the summary of parity remain a cause effective impact on both is that the age factor found diminished in Saudi Arabia and perhaps due to genetic or environmental influences.

Conclusion and Recommendations

The correlation between the maternal age and parity with placenta previa there are a risk factor of incidence of PP. It is recommend to marry at age between the 20 to the 29 in order to avoid bad pregnancy outcomes. It is also recommended research on the genetic or environmental factors and their role in the development of placentaprevia.

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