Is age -really- a risk factor in pregnancy?

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Abstract:

Background: The risk approach fails signally to identify many of women who will need care for complications in childbirth. On the other hand, many women identified as "high risk" go on to have perfectly normal, uneventful births.

Objectives: to see if there is a real risk of maternal age in the course and outcome of gestation for both mother and fetus.

Methods: This is a cross sectional study conducted in Baghdad during the period from March through October 2004, a sample of 200 women (with 642 pregnancies) was randomly chosen from women attending four primary health care centers, Outpatient and antenatal care clinics. Their ages ranged between 13–50 years. The cases were stratified according to age to 3 main groups: below 18 years, above 35 years and (18-35 years); the last was considered as a control group.

Results: The young age group was found to have less infection rate, hospital admission, abortion, puerperal complications and neonatal complications compared to the controls and the old age group (that were almost equal in these aspects). Women of primary education level had less complication in all age groups. Women from the young age group were attending antenatal care more adequately than the controls.

Conclusion: Young age pregnancies are at lower risk compared to other age groups.

Key words: age, risk, pregnancy.

Introduction

Every year, more than 200 million women become pregnant, and some 15% are likely to develop complications that will require skilled obstetric care to prevent death or serious ill-health [1]. Throughout the world it is estimated that 585 000 women die each year from causes related to pregnancy and childbirth [2]; 20-40% of the fatalities are preventable [3].

In Iraq, maternal mortality rate in 1999 was 294 per 100000 live births and infant mortality rate was 108 per 1000 live births [4, 5].

Any woman can develop complications during pregnancy, labour and the postpartum period. Although some pregnancies carry more risk than others, predicting complications in the individual woman is uncertain[1]. Adolescents and women over the age of 35 years have been reported to have high rates of complications, it is not clear, however, whether these age differentials are due to biological mechanisms or other characteristics related to pregnancies at the extremes of maternal age [6].

The objective of this study is to explore whether age is really a risk factor in pregnancy or there are other confounders that intervene and the age is accused in a biased way.

Materials &Methods

This is a Cross-sectional study (with an analytic element) that was conducted in Baghdad city during the period from March, through October 2004.

A total of 642 pregnancies were studied, the history of which was taken from a sample of 200 women that were chosen by a simple random technique from:

Women attending PHC centers (2 rural, 2 urban): 199 pregnancies (55 women).

Outpatient and antenatal care clinics of Al-Yarmouk Teaching Hospital and Baghdad Teaching Hospital: 94 pregnancies (32 women).

General population: 349 pregnancies (113 women), almost equally distributed in the 10 districts chosen by a simple random technique (8 urban, 2 rural).

A questionnaire form was constructed including: name, address, education level, history of chronic disease(s), habits, family history, patient's past obstetric history, Pregnancy outcome (abortion, intrauterine death, preterm, term or post term delivery).

The data collection was carried out in the outpatient units of the hospitals.

Regarding the population-based part of the study, 10 houses were chosen in a simple random way (the second division from the main street in each district) by leaving 3 houses and start with the fourth systematically, 2-3 days a week.

Data was collected and analyzed using absolute and relative frequencies. Chi square test was used to test for the significance of association with a "p value" less than 0.05.

Results:

Out of the total 642 pregnancies, 103 (16 %) were less than 18 years (when they got pregnant), 105 (16 %) more than 35 years and 434 (67%) aged 18- 35 years (Table 1). The complications that urged hospital admission occurred mostly in the first and third trimesters in both the young and old age groups (56.3%, 46.2%) and (25%, 30.8%), while it was prevalent in the first and second trimesters in the controls (43.9%, 28.1 %)

Regarding the mode of delivery, three quarters delivered normally in all the groups, abnormal vaginal delivery in the young and old age group was 15.4 % and 13.3% compared to 18.3 % in the controls, the cesarean section was more in the young and old age groups (11%, 12 %) than in the control 8.5% (Table 2).

Table (1): Distribution of the sample according to age and source of data.

Site of data collection	Young age group	Control group	Old age group	Total (%)
PHC	44	121	34	199 (31%)
Hospital	19	47	28	94 (14.6%)
General Population	40	266	43	349 (54.4%)
Total	103 (16 %)	434 (68%)	105 (16%)	642 (100%)

Table (2) Distribution of the studied groups by type of delivery

Type of delivery	Young age group		Control group		Old age group	
	No	%	No	%	No	%
NVD	67	73.6	260	73.2	62	74.7
Assisted VD	14	15.4	65	18.3	11	13.3
C/S	10	11	30	8.5	10	12
Total*	91	100	355	100	83	100
Between gps Ass.VD	x^2=0.31, P value =0.581					
Between groups (C/S)	x^2=0.44, P value =0.508					
NVD Vs Assisted VD	x^2=0.94, P value =0.333					
NVD Vs C/S	x^2=0.74, P value =0.391					

* The total is 529 (not 642) because there were 113 abortions

The term delivery was higher in the young age group 84.5% than in the control (76.9%) and the old age group (72.3%), while preterm and post-term deliveries were (3.9% and 1%) in the young, (2.8%, 2.1%) in the control and (4.8% and 1.9%) in the old age group respectively. Abortion (mostly incomplete) was lowest in the young age group (11.6%), and highest in the old age group (20.9%) (Table3).The percentage of puerperium complications was 5.8%, 12.2% and 11.4% in the young, control, and old age groups respectively. The percentage of neonates that developed complications increases with maternal age; it was 20.9% in the young age group, 31% in the control and 36.1% in the old age group (Table 4).

Table (3) Distribution of the studied sample by pregnancy outcome.

Pregnancy outcome	Young age group		Control group		Old age group	
	No	%	No	%	No	%
Abortion	12	11.6	79	18.2	22	20.9
Preterm	4	3.9	12	2.8	5	4.8
Term	87	84.5	334	76.9	76	72.3
Post term	1	1	9	2.1	2	1.9
Total	103	100	434	100	105	100
Between age groups	X^2=3.46, P value =0.326		X^2=1.65, P value =0.647			
Term and others	X^2=2.09, P value =0.149		X^2=0.97, P value =0.324			

Table (4) Distribution by puerperal and neonatal complications.

Complications at neonatal / Puerperal period		Young age group		Control group		Old age group	
		No	**%**	**No**	**%**	**No**	**%**
Mother	**Positive**	6	5.8	53	12.2	12	11.4
	Negative	97	94.2	381	87.8	93	88.6
Total		103	100	434	100	105	100
		^2X X^2= 3.47, P value =0.063			X^2=0.05, P =0.825,		
Neonate	**Positive**	19	20.9	110	31	30	36.1
	Negative	72	79.1	245	69	53	63.9
Total		91	100	355	100	83	100
		X^2=3.60, P value =0.058			X^2=0.82, P =0.364,		

Women in the young age group who had complications in their first pregnancy formed 71.4% versus 18% in the control and 12.8% in the old age group. Women who had complications in their second to fourth pregnancy were 28.6% in the young age, and 18.2% in the old age compared to 50.4% in the control group. There was a highly significant association regarding the occurrence of complications in the young age and control group (X^2 = 29.6, P =0.0001), and between the positives of the old age and the control group (X^2 = 27.3, P =0.0001) (Table 5).

Eighty- three percent of the women that had complications in the young age strata were practicing adequate antenatal care (ANC) while the percentage was 49.1% in the old and 71% in the controls. On the other hand; 11.9% of the young, 14.5% of the old and 14.5% of the controls that had complications were practicing inadequate ANC. In the young age group 4.8 % were not practicing ANC, in the old age this was 36.4%, and 14.5% in the controls. The difference was statistically significant between women who do not practice ANC in all groups (X^2= 9.30, P=0.009) and highly significant between the controls and the old age group (X^2 = 14.55, P=0.0007) (Table 6).

Table (5) The relationship between rank of pregnancy and complications.

Rank of pregnancy	Young age group Complications				Control group Complications				Old age group Complications			
	+	%	-	%	+	%	-	%	+	%	-	%
1st	30	71.4	41	67.2	42	18	34	17	7	12.8	5	10
2nd –4th	12	28.6	20	32.8	118	50.4	105	52.5	10	18.2	5	10
More than 4th	0	0	0	0	74	31.6	61	30.5	38	69	40	80
Total	42	100	61	100	234	100	200	100	55	100	50	100
Between positives	x^2= 29.6, P =0.0001				x^2= 27.3, P =0.0001							

Table (6) The relationship between antenatal care and complications.

Antenatal care	Young age group Complications				Control group Complications				Old age group Complications			
	+	%	-	%	+	%	-	%	+	%	-	%
Adequate	35	83.3	46	75.4	166	71	127	63.5	27	49.1	30	60
Inadequate	5	11.9	6	9.8	34	14.5	19	9.5	8	14.5	9	18
None	2	4.8	9	14.8	34	14.5	54	27	20	36.4	11	22
Total	42	100	61	100	234	100	200	100	55	100	50	100
Between positives	^{2}x= 3.53, P =0.171				x^2= 14.55, P =0.0007							
Between the adequate	x^2= 5.41, P =0.067											
Between the inadequate	x^2= 2.37, P =0.306											
Between the none	x^2= 9.30, P =0.009											

Discussion:

Maternal mortality is a global public health concern and reducing maternal death is a priority on the health and political agenda to every nation[7].

Efforts to reduce maternal and peri-natal mortality have often sought to identify both population groups and individuals who are at high risk.

In this study it had been found that the complications in the young age group are less than in the control and old age group. The Iraqi culture usually encourages pregnancy soon after marriage (young age group) and afford special care (social and medical) for the woman, this may be the reason behind the low rate of complications seen in the young age group, this agrees with many studies [8,9,10,11,12], and disagrees with others [13,14].

Mode of delivery: The entire group had approximately the same percentages of normal vaginal delivery, but the differences occurred between the abnormal vaginal delivery and the cesarean section, the last is more in the young and old age group compared to the control group, while the abnormal vaginal delivery is more in the control group. This may be explained by that obstetricians may have a lower threshold for intervention in younger or older women to avoid the complications. A second explanation is the immature pelvis in young women, and the myometrium function deterioration in the old. This is in agreement with some studies [10,15,16,17] and in disagreement with others [18].

Pregnancy outcome:

The abortion percentages increase gradually with age, while the term delivery declines. This may be due to chromosomal malformation, beside, the growth of fibroids tends to occur more frequently in women in their thirties, this agrees with [19,20] but disagrees with [21,22].

Most of these abortions were incomplete. The high rate of abortions in the teens in some countries may be due to the high incidence of induced abortion that may reach 50% of the total abortions in these countries [23, 24]. The preterm and post term deliveries were more in the young and old age groups compared to the control, but with no statistically significant difference, many studies [25, 26, 27, 28] revealed a significant difference.

Puerperal & neonatal complications:

The puerperal complications were lower in the young compared to the controls and old with no significant statistical difference. This could be attributed to the special family care for the young pregnant in the eastern countries, beside, they are physically stronger with less chance to catch diseases [10].

Regarding the ANC; it is worth mentioning that the study was done in the capital where the ANC coverage is usually high. This was also noticed by some authors [29, 30, 31, 32]; yet,

the neonatal complications showed a positive increment with age.

Having the first pregnancy; most of the young age women tend to care more about their health, food and attending ANC clinics, moreover, they will be instructed to do so by the senior individuals in their families for the good of themselves and the coming neonate. This degree of close care and warm family-relationship may not be found in the most western countries. In addition; the trend of practicing illegal (that also means unwanted) pregnancies (which is more prevalent in the west especially in the low socio-economic strata) superimposed by ignorance and delayed ANC, all these lead to more problems and complications in this (young) age strata [27, 29, 33].

Antenatal and postnatal care: The young age group had the highest percentage of regular attendance to the ANC centers followed by the controls while the old was down the list, this agrees with [34] and disagrees with [35,36]. This may explain the high level of complications in the old age group as was seen in some other studies [37 38].

It was also found that pregnant women (in young age and control groups) who had complications were more regular in their ANC visits than pregnant women with no complications; the possible explanation is that those women start to attend the ANC after they got the complications and continue adequately [39].

It can be concluded from this study that age is not really a risk factor in the course and outcome of pregnancy; it is -rather- the associated factors (mostly social) that may exacerbate the condition giving a false association or -at least- an over-estimation.

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