OPTIMUM AGE OF A PRIMIGRAVIDA*

by

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Extremes of reproductive age coupled with primiparity make the patient particularly liable to pitfalls of pregnancy and labor. Below 18 years age, maternal growth may compete with fetal growth (Baird *et al*, 1958). These authors considered reproductive efficiency to be at its maximum between 18 to 20 years. McKeown (1954) and Roberston (1960), considered 25 to 28 years to be the best age for first birth. In India, Shirali and Bhatt (1961-62) concluded that 16-20 years is the best age for childbearing as it is associated with less complications and better fetal survival than at any other age. Anaemia, pregnancy induced hypertension, prematurity occur more frequently in teenage pregnancy as compared to western literature. Probably these complications are due to grossly neglected prenatal care and social stigma attached to these teenage, often illegitimate pregnancies. In older women, cardiovascular disabilities, diabetes mellitus and musculoskeletal derangement complicate the issue but a woman is obstetrically old before she is chronologcally old (Higdon 1960). In elderly primigravidae labour is often prolonged, in addition there is also a much greater risk of death of the fetus just before or during early stages of labor, probably as a result of placental insufficiency.

Materials and Methods

Five hundred consecutive primigravidae admitted to obstetric department of Lady Hardinge Medical College, New Delhi, are reviewed. Majority of the labor cases were unbooked. Very few belonged to social class I & II (ICMR) as the hospital has very limited private accommodation.

Observation and Comments

Abortions: (Table 1)—Statistically significant lower rate of abortion was found in age group 20 to 24 years. Posner and Puller (1935) observed abortions to be 32 per cent more in adolescents than in entire service. Other workers have not found increase or decrease with age

TABLE I

Abortion in Relation to Age in Primigravidae

Age Groups in Years	15-19	20-24	25-29	30
No. of Cases	145	300	70	35
Abortions	26	24	9	4
Percentage	17.9*	8.0	12.8*	11.4

* Statistically highly Significant $P < .01$.

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(Aznar and Bennett 1961; Hulka and Schaaf 1964).

Anaemia: (Table II) Significant decrease in anaemia i.e. Hb less than 10.0 G was found with increase in age. A young primipara of 19 or below was more often anaemic than older mother. Severe anaemia i.e. Hb below 6.0 G was found only below 30 years age. This could be due to the better social status, literacy and prenatal care of primiparae above 30 years age (reported in next paper).

Hypertension and Toxaemia of Pregnancy: 'Unclassified toxaemia' defined as hypertension alone without either proteinuria or edema was reported by Utian (1964) to be higher in young patients, 15% in those less than 16 years age compared to only 5% in his control group. In the present study (Table III) it was higher in 15-19 years group but the difference was not statistically significant.

Slow and steady increase in the incidence of toxaemia with age has been reported by many workers (Shirali and Bhatt, 1961; Young, 1962; Kane, 1967). Same is found in the present study Table IV.

Eclampsia occurs predominantly in young primiparae. It occurred in 2.5% of primiparae of age below 19 years, in 1.1% of 20-24 years and none in older group.

There is no controversy regarding eclampsia occurring in young; opinions vary regarding influence of age on severe toxaemia. Young (1963) and Hoffmeister and Burgess (1955) found severe toxaemia more often in young while Nelson (1955) found it unaffected by age. In the present Study (Table IV) severe toxaemia was found to increase with age, same as reported by Shirali and Bhatt (1961). Increase with age is expected with less stable cardiovascular and renal systems.

TABLE II

Anaemia in Relation to Age in Primigravidae

Hb. Level in gms.%	Age Groups in Years							
	15-19		20-24		25-29		30	
	No.	%	No.	%	No.	%	No.	%
10 and above	31	26.0*	110	40.1	26	42.7	14*	45.2
8.5—10 (mild)	66	55.5	134	48.9	28	45.9	13	41.9
6.5—8.5 (moderate)	18	15.1	26	9.5	5	8.2	4	12.9
Less than 6.5 (severe)	4	3.4	4	1.5	2	3.2	—	00.0
Total	119	100.0	274	100.0	61	100.0	31	100.0

* Statistically Significant $P < .05$.

TABLE III

'Unclassified' Hypertension of Pregnancy in Relation to Age in Primigravidae

Age Groups in Years	15-19	20-24	25-29	30
No. of Cases	119	274	61	31
'Unclassified' No.	20	37	7	4
Hypertension	16.8	13.5	11.5	12.9

TABLE IV

Toxaemia of Pregnancy in Relation to Age in Primigravidae

Toxaemia	Age Group in Years							
	15-19		20-24		25-29		30	
	No.	%	No.	%	No.	%	No.	%
Not Toxaemic	102	85.7*	218	79.5	46	75.4	23	74.2*
Mild Toxaemia	12	10.1	35	12.8	9	14.8	4	12.9
Severe Toxaemia	2	1.7	18	6.6	6	9.8	4	12.9
Eclampsia	3	2.5	3	1.1	—	00.0	—	00.0
Total	119	100.0	274	100.0	61	100.0	31	100.0

* Not significant P>.05.

The much reported high incidence of toxaemia in teenage pregnancy was not found in present 15-19 years age group but most patients were of 18 years age and above. Hulka and Schaaf (1964) Hay and Boyd (1973) also did not find toxaemia to be increased in juvenile patients.

Premature Rupture of Membranes: Statistically significant increase with age was found in premature rupture of membranes, being 6.0% below 25 years and 12.0%, nearly double, above 25 years age group.

Antepartum Haemorrhage: There were 3 cases of abruptio placentae (2.5%) in 15-19 years primiparae, 3 (1.1%) in 20-24 group and nil in 25-29 year group. There was only 1 case of *Placenta previa*. Statistically there was no significant difference in incidence of antepartum haemorrhage. There are conflicting opinions regarding the incidence of abruptio placentae in juvenile primigravidae (i.e. less than 16 years age). It was reported to be increased by Marcheti and Menaker (1950).

According to Eastman and Hellman (1971) primigravidae over the age of 35 are about three and half times more likely to have placenta previa than those under 25; he considered this to be due to defective vascularisation of decidua.

Premature Labour: The first babies are least often premature when the mother is aged 25 to 30 years. Mothers under 20 are most liable to premature labor according to Douglas (1950). In this study (Table V) also the incidence of prema-

TABLE V

Frequency and Percentage Distribution of Primigravidae According to Duration of Gestation in Relation to Age

Duration of Gestation in Weeks	Age Group in Years							
	15-19		20-24		25-29		30	
	No.	%	No.	%	No.	%	No.	%
Less than 37	22	19.1	45	16.9	7	11.5	8	25.8
37-41	87	75.7	205	76.4	48	78.7	20	64.5
More than 41	6	5.2	18	6.7	6	9.8	3	9.7
Total	115	100.0	268	100.0	61	100.0	31	100.0

Not Significant P>.05.

ture labor was lowest in 25 to 29 year old primigravidae, though its maximum incidence was in those aged 30 and above. Dutta (1972) found prematurity rate unaffected by age till the 29 year age and from 30 years onwards it increased probably due to increased prevalance of pregnancy complication.

A young primigravidae of less than 19 years age is also liable to start labor more often prematurely. Juvenile patients are reported to have higher premature rate because of toxaemia and biologic immaturity (Hassan and Falls 1964) Better prenatal care has been shown to decrease prematurity in these girls (Aznar and Bennet, 1961; Hassan and Falls, 1964).

Duration of Labour: Baird (1952) concluded from his study of 1972 primiparae that labor is normal in age group of 15 to 19 years; there is a definite deterioration even in age group 20-24. Same was found in present study. Shirali and Bhatt (1961-62) also found labor short in this group. Prolonged labor is uncommon. Only 6.9% had labour longer than 24 hours in age group 15 to 19, while 13.4% in age group 20 to 24 years (Table V). No case had labour longer than 48 hours, while 2.7% had such long labour in age group 20 to 24 years (Fig. I).

Operative Deliveries: The necessity of operative intervention at a higher station of head in the pelvis in old primigravidae has been recognised by Randall and Taylor (1949). Mid-cavity forceps and cesarean sections were significantly less often required below 25 years age, increasing from 3.5% in 15 to 19 group, 7.3% in 20-24, and 20.7% in 25-29 year age group. Dystocia is not only more of dysfunctional type but also of mechanical nature.

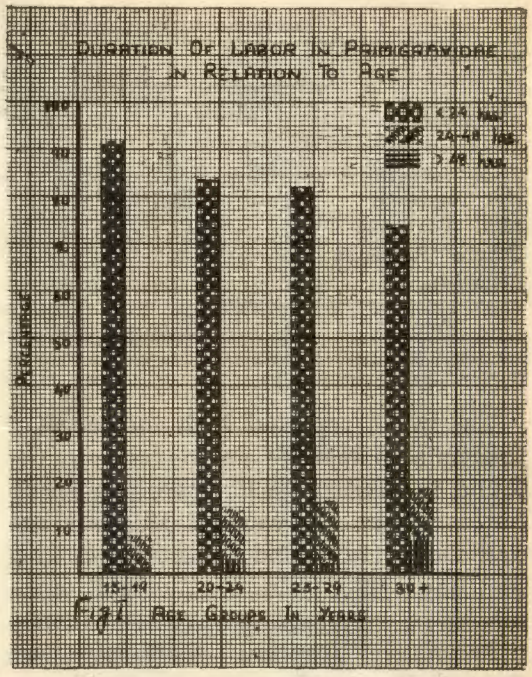

Fig. 1

Third Stage and Puerperium: No significant difference was found in total third stage complications and incidence of puerperal pyreia.

Birth Weight: Mean birth weight was found maximum in 25-29 years group. Mean birth weight increased from 2361 G. in 15 to 19 year group, to 2515 G. in 20-24 year, 2637.46 in 25-29 year and it decreased thereafter. This was statistically significant.

Perinatal Morality: Perinatal Morality is least in primigravidae between 25 to 29 years. It rises sharply in primiparae of 30 years and above. The higher birth weight in primigravidae of 25 to 29 years group gives the new born a better resistance to stand the stress of labor and neonatal infections. The possibly decreased placental reserve in older parturient

leads more often to 'small for date' babies and unexplained intrauterine deaths.

Conclusions

Labor in primiparae is most efficient between 15 to 19 year age. The pregnancy complications like abortion, anaemia multiple pregnancy, severe toxaemia and eclampsia are least in 20-24 year group (Fig. 2). However, the best fetal outcome in terms of birth weight and perinatal mortality is in age group 25 to 29 (Fig. 3). Operative intervention is more often required after the age of 25 years. We are not in agreement with Baird *et al* (1958) and Shirali and Bhatt (1961-62) that earlier the first pregnancy the better it is—Shortness of labor is not the only criterion. Fetal outcome is a better index. An older mother say between 24 to 27 years would be more meticulous in prenatal care than her younger counterpart and would not have deteriorating cardiovascular and degenerating musculo-skeletal system, be as anxious and apprehensive as older primipara and she would more often give birth to a term good size baby. Such a mother should be within reach of skilled help for any operative procedures required. If a native 'dai' is all that she can get, let her be 15-19 year old, as labor is likely to be spontaneous more often.

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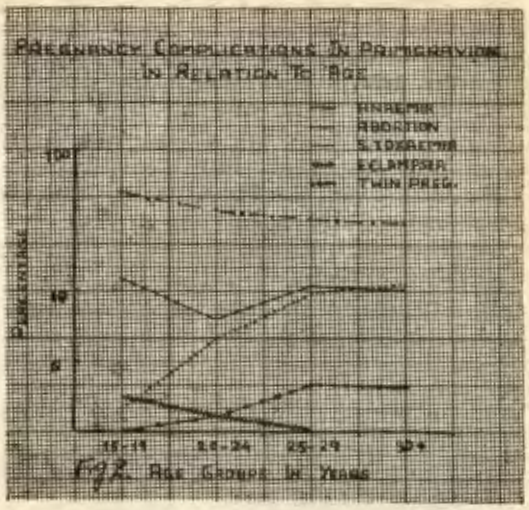

Fig. 2

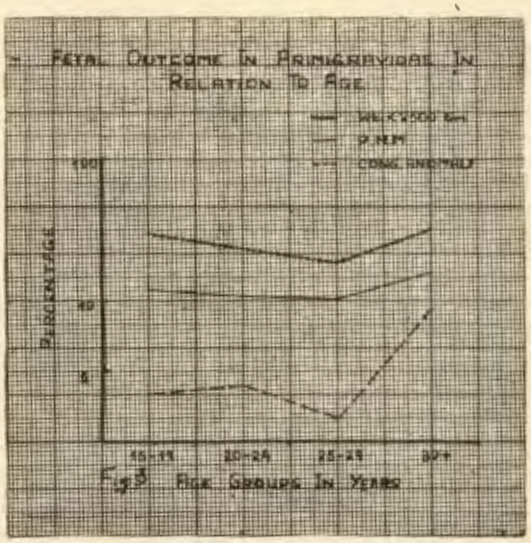

Fig. 3

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