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E. O. ORJI, A. S. SHITTU, O. N. MAKINDE and S. S. SULE

ABSTRACT

Background: **Researchers have held varied opinions on the effect of prolonged birth spacing on maternal and perinatal outcome.**
Objectives: **To determine the reasons for prolonged birth spacing and to compare the maternal and perinatal outcome compared to shorter normal birth spacing.**
Design: **Comparative case - controlled study between January 1st, 2001 to December 31st, 2002.**
Setting: **Obstetric Unit of Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Nigeria.**
Subjects: **Fifty cases consisted of multiparae with prolonged birth spacing (≥6 years) and controls consists of similar number of multiparae with shorter normal birth spacing (2 - 5 years) matched for age, parity and socio-economic status.**
Main Outcome Measures: **Labour outcome, Apgar scores, operative and vaginal delivery rates, perinatal and maternal outcome, reasons for prolonged birth spacing.**
Results: **There was no significant difference observed with respect to spontaneous onset of labour, induction or argumentation of labour, duration of labour, spontaneous vaginal delivery rates, Caesarean section rates, instrumental vaginal deliveries, analgesic requirement, postpartum haemorrhage, and Apgar scores in both groups. There were no perinatal or maternal deaths. The commonest reason adduced for prolonged birth spacing is failed contraception (56%), followed by secondary infertility (24%) and to a lesser extent re-marriage, improved income and sheer desire.**
Conclusion: **There was no significant difference in maternal and perinatal outcome in pregnancy between women with prolonged birth spacing and those with normal shorter birth spacing.**

INTRODUCTION

It has long been known that avoiding closely spaced births is advantageous to child health. Two year spacing was widely identified and promoted as "the healthy interval". Many studies found that infants paced at least two years apart are more likely to survive than infants spaced less than two years(1-3). New studies have shown that even longer intervals of 3 to 5 years are better for infant and maternal survival and health(4,5).

Some researchers also opined that birth intervals longer than five years are less healthy suggesting that such mothers may lose the protective benefit of previous child bearing and hence have pregnancy and labour complications as seen in primigravida(6,7). Others in their studies demonstrated that there appears to be no clinical evidence for this commonly held clinical opinion(8,9).

This comparative case-controlled study was undertaken to find out the reasons adduced by the parturient for the prolonged birth spacing interval and if such interval has any effect on maternal and perinatal outcome having taken into account the confounding factors like advanced maternal age, parity and socio economic status.

MATERIALS AND METHODS

This study took place at the Obstetric Unit of Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Nigeria which provides tertiary health care services to Osun State, Ekiti, Ondo and neighbouring States in Nigeria with a catchment population of over 10 million. Two groups of pregnant women were studied during the period of January 2001 to December 2002. The total number of deliveries during the study period was 2,215. During the study period 50 pregnant women were seen whose last conferment was six years or more and these women served as cases. The control group consisted of another 50 multipara whose last confinement was 2 to 5 years previously seen within the study period. Both groups were matched for age (within two years), parity and socio economic status.

The reasons adduced for the prolonged birth spacing interval and labour outcome measures were documented. The results were analysed in a computer using Epi-info 2002 software package (CDC, USA & WHO Geneva Switzerland).

The student t-test and x^2 test whichever was appropriate was used to determine statistically significant difference between the two groups. The level of significance was set at P<0.05.

RESULTS

Table I shows the distribution of maternal characteristics in the two groups. The mean maternal age and parity for the study group was 38.1 ± 3.6 and 5.2 ± 1.8. Statistical analysis confirmed that this matching was satisfactorily done. The mean inter delivery interval in the study group was 10.9 ± 2.1 years while that of the control group was 3.5 ± 0.9 years.

There were no significant differences observed with respect to spontaneous onset of labour, induction or argumentation of labour, duration of labour, spontaneous vaginal delivery, Caesarean sections, instrumental vaginal deliveries, analgesic requirement, or post partum haemorrhage as adjudged by the need for blood transfusion.

The indication for Caesarean sections was shown in Table 2. The indications were not related to birth spacing interval. Failure to progress in labour due to cephelopelvic disproportion was the commonest indication in both groups.

Table 1

Distribution of maternal characteristics in the two groups

Outcome	Study Group	Control Group	Statistical Significance	Analysis
Mean maternal age (years) ± SD	38.1±3.9	37.6±3.6	T-test P=0.507	NS
Mean Parity ± SD	5.4±2.1	5.2±1.8	T-test P=0.610	NS
Mean birth spacing interval (years) ± SD	10.9±2.1	3.5±0.9	T-test P=<0.0001	HS
Spontaneous labour inset	40	36	X^2 P= 0.349	NS
Induced labour	10	14	X^2 P=0.349	NS
Augmented labour	14	12	X^2 P=0.648	NS
Mean duration of labour (hours)	6.8±1.12	6.4±1.16	T-test P>0.05	NS
Spontaneous vaginal delivery	41	38	X^2 test P=0.235	NS
Caesarean section	8	6	X^2 test P=0.568	NS
Instrumental vaginal delivery (Ventouse)	3	4	X^2 test P=0.695	NS
Need for blood transfusion	2	3	X^2 test P=0.401	NS
Analgesia	27	24	X^2 P=0.689	NS

T-test = Standard t-test, X^2= Chi square test, NS= Not significant, HS= Highly significant

Table 2

Indications for Caesarean section in the two groups

Indication	Study group	Control group
Failure to progress due to CPD	5	4
Foetal distress	1	2
Transverse lie	1	0
Placenta praevia	1	0

Table 3

Foetal outcome measures in the two groups

Foetal outcome	Study Group	Control Group	Statistical Significance	Analysis
Infant birth weight				
≤2.5kg	2	4	P=0.400	NS
2.5≤4kg	44	40	P=0.275	NS
≥4kg	4	6	P=0.505	NS
Mean birth weight ± SD (Kg)	3.350±0.347	3.30±0.172	P=0.53	NS
Sex Distribution				
Male	20	23	P=0.195	NS
Female	30	27	P=0.152	NS
Apgar Scores at 1 minute				
0-3	0	0		
4-6	3	6	P=0.295	NS
7-10	47	44	P=0.295	NS

Table 4

Adduced reason for prolonged birth spacing interval in the study group

Reason	No.	(%)
Failed contraception	28	56
Secondary infertility	12	24
Re-marriage	5	10
Improved income	3	6
Sheer desire	2	4

Table 3 shows the distribution of foetal outcome measures. There was no significant difference observed in the birth weight and sex distribution. The widely accepted indication of foetal condition at birth is the Apgar score. The Apgar score evaluation was used to assess the foetal morbidity in this study. Table 3 showed that cases of mild asphysia in the control group was in fact a little more than in the study group but this was however not statistically significant. There was no foetal or maternal death.

Table 4 shows the various reasons given for the prolonged birth spacing interval. Failed contraception was the commonest reason (56%), followed by secondary infertility (24%), re-marriage, improved income, and sheer desire were reasons given by fewer women.

DISCUSSION

Birth spacing interval has been a subject of interest to health researchers. While so many studies have shown the deleterious effect of short birth spacing interval on maternal, perinatal and neonatal outcome, little attention has been given to the effect of prolonged birth spacing interval on labour outcome(10,11).

The biological and behavioural mechanism by which shorter intervals affect infant and maternal morbidity and mortality are maternal depletion syndrome, premature delivery, milk dimunition and sibling rivalry(10,12,13). On the other hand the mechanisms that make longer birth interval healthier for infant and mothers are however difficult to identify. This is because factors like maternal age, parity and health influence, birth interval affect maternal and child health independently(3,6,10).

Women with prolonged birth spacing interval are not uncommon in our obstetric practice. This is a reflection of poor and inconsistent contraceptive use in these women(14), hence failed contraception was the commonest reason for the prolonged interval (56%). Also many women in developing countries like ours suffer from reproductive health problems such as pelvic inflammatory disease and uterine fibroids(15,16) and are thus less fertile. These women may become pregnant only at lengthy intervals and their high risk for pregnancy complication could be due to underlying reproductive tract diseases, not because of longer inter delivery intervals(14-17). This is further buttressed by the fact that in this study no apparent adverse labour outcome was observed in women with secondary infertility.

The analysis of results in this study showed that there was no statistically significant difference in the performance of the patients in both groups. In short it had been opined that manipulation of the pregnancy intervals is unlikely to have any marked direct effect on the outcome of pregnancy(18).

Often times when women with prolonged birth spacing interval present in booking clinic, they are rated high risk. It is obvious from the results of the study that the real risks are the advanced maternal age, and grandmultiparity which are common in these women as prolonged birth spacing interval parse has no significant effect on labour outcome.

The fact that majority of these women got pregnant when they least expected as a result of failed contraception, calls for more counseling and follow-up on the part of practicing gynaecologists and other family planning service providers. The emphasis on the use of more reliable contraceptive methods such as permanent (voluntary surgical) contraception should be given to women with completed family size.

In conclusion this study had not shown any adverse pregnancy outcome among women with prolonged birth spacing in our environment. It is recommended that appropriate permanent contraception should be offered to multiparae with completed family size.

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