PERINATAL OUTCOME OF PREGNANCIES FOLLOWING INFERTILITY

ANIL BHALLA ● SARALA GOPALAN ● LAKHBIR DHALIWAL

SUMMARY

In a prospective clinical study conducted at Post Graduate Institute of Medical Education & Research, Chandigarh, perinatal outcome in 112 subjects who had conceived after prior infertility was compared to same number of matched controls. These subjects had a significantly higher risk of having antepartum haemorrhage and intrauterine death of foetus. These subject also had a significantly higher risk of going into preterm labour and delivering a low birth weight baby as compared to controls ($p < 0.01$). The perinatal mortality was also significantly higher in the study group ($p < 0.05$). There was no difference in the incidences of congenitally malformed babies, and multiple pregnancies. The incidence of caesarean section was higher in patients who conceived after infertility.

INTRODUCTION

The job and excitement of conception in a previously infertile couple is soon replaced by a growing anxiety about the outcome of this pregnancy. Whether the problem of infertility is over or whether its ill effects would continue to cast a shadow on the pregnancy ? The primary concern of all these women is whether they would be able to deliver a healthy infant at term or whether there are any increased risk factors associated with their pregnancies. With these questions in mind they approach their obstetrician. In order to scrutinize whether such a pregnancy is a high risk one, and if so, to identify the problem areas as regards perinatal outcome that this prospective controlled trial was planned.

Dept. of Obst. & Gyn. Siddhartha Medical College, Tumkar, Karnataka.

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MATERIALS AND METHODS

This study was conducted at the Department of Obstetrics and Gynaecology at Postgraduate Institute of Medical Education and Research, Chandigarh. One hundred and seventeen women who had conceived either after primary infertility of 2 years or more or after secondary infertility of 3 years or more were recruited for the study. For each subject of the study group, a control without a history of infertility was also recruited. Five study group subjects dropped out and their controls were also deleted from the study. Thus finally there were 112 subjects in the study and an equal number of controls.

A proforma was designed to get detailed information about patients regarding details of infertility. These subjects were examined at least once in a month during early pregnancy and later more frequently and any complications during antenatal period were carefully recorded. Details of type of labour and mode of delivery were also scrutinised. Perinatal outcome as regards baby weight, Apgar score and type of neonatal care required by the baby an the final outcome were also recorded in both the groups. The statistical analysis was done by chi square method.

RESULTS

Age and parity distribution in the study and the control groups was the same since the subjects were matched for these criteria. The average age for the study group was 28.8 years. The youngest patient was 19 years old and the oldest being 40 years of age. The conception rate was maximum before 30 years of age (66.1%). Two third of the patients conceived after primary infertility while one third after secondary infertility. A large number of patients (67.5%) conceived without any recognised form of treatment, 21 patients (18.6%) needed ovulation induction, 5 patients (4.3%) conceived when their partners were

Table I

Pregnancy Complications

Complication	Study Group		Control Group	
	Number	Percentage	Number	Percentage
First trimester bleeding	5*	4.8	0*	0
Spontaneous abortion	3	2.8	1	0.9
Ectopic pregnancy	5	4.8	1	0.9
Pregnancy induced hypertension	37	35.5	29	28.1
Antepartum haemorrhage	7*	6.8	1*	0.9
Intrauterine death of foetus	8*	7.7	1*	0.9
Multiple pregnancy	4	3.8	1	0.9
Gestational diabetes melitis	4	3.8	3	2.9

* $p < 0.05$

treated, another 7 (6.7%) conceived after surgical treatment (Myomectomy & tuboplasty) and 3 did so after medical treatment of systemic disease (Hypothyroidism or tuberculosis).

Among the early pregnancy complications significantly more patients in the study group had first trimester bleeding. Spontaneous abortion and ectopic pregnancy were also more common in the study group while the incidence of complications like pregnancy induced hypertension and gestation diabetes melitis was practically the same in both groups (Table I). On the other hand 7 patients (6.8%) in the study group had antepartum haemorrhage (placenta praevia - 2, accidental haemorrhage - 2, unclassified - 3) as compared to only one in the control group showing a significant difference. Also intrauterine death of the fetus occured in 8 patients (7.7%) in the study group as compared to only 2 (1.9%) in the control group.

As regards the mode of delivery a significantly greater number of patients had delivery by caesarean section in the study group. Table II shows the period of gestation at the time of delivery in the 2 groups. Subjects conceiving after infertility were at a significantly higher risk (Relative risk 2.23) of having a preterm delivery (28.1%) as compared to normal subjects (12.6%). The perinatal outcome is shown in Table III. The patients with early pregnancy losses in the form of spontaneous abortion and ectopic pregnancy have been excluded in this table. Out of the 8 still births in the study group

Table II

Period of gestation at the time of delivery

Duration of gestation in weeks	Study group n = 103	Control group n = 103
29 - 32	4 (3.8)	1 (0.9)
33 - 37	25* (24.3)	12* (11.6)
> 37	74* (71.9)	90* (87.4)

Results are n (%)
* $p < 0.01$

Table III

Perinatal Outcome

Perinatal Outcome	Study Group n = 103	Control Group n = 103	Relative Risk	95% CL
Live born	99*(92.4)	102 (98.1)	—	—
Still born	8*(7.6)	2 (1.9)	3.89	0.85 - 17.89
Neonatal deaths	3 (2.9)	1 (0.9)	3.09	0.33 - 29.2
Congenital malformations	3 (2.9)	0	—	—
Perinatal mortality	102*	29*	3.56	1.02 - 12.4
Twins	4 (3.8)	1 (0.9)	3.89	044 - 34.23

Results are n (%)
* $p < 0.05$

Table IV

Birth weight

Birth weight in grams	Study Group n = 107	Control Group n = 104	Relative Risk	95% CL
< 1000	3 (2.8)	0	—	—
1001 - 1500	4 (3.7)	2 (1.9)	—	—
1501 - 2000	10 (9.4)	4 (3.8)	—	—
2001 - 2500	25 (9.4)	15 (14.5)	—	—
> 2500	65*(60.7)	83*(79.8)	—	—
Low birth weight babies	42*(39.3)	21*(20.2)	1.94	1.24 - 3.05
Severe IUGR babies (Birth weight > - 2SD)	8 (7.4)	3 (2.8)	2.59	10.01 - 9.5

Results are n (%)
* p < 0.05

2 were due to major congenital malformations, 3 due to severe pregnancy induced hypertension and one each due to antepartum eclampsia and accidental haemorrhage. Out of 3 neonatal deaths in the study group 2 were due to prematurity and one due to birth asphyxia and septicemia.

Birth weights in the 2 groups have been compared in Table IV. The risk of having a low birth weight baby is significantly more after a history of infertility (R.R. 1.94). Similarly risk of having a severely IUGR baby was significantly more in the study group as compared to control group.

DISCUSSION

The present study was undertaken to find out the influence of previous infertility on perinatal outcome of this pregnancy. A subject conceiving after a significant period of infertility is often elderly. Thus in a study by *Newton et al (1978)* the average age in the infertile group was 31.8 years as compared to 23.7 in the women with no history of infertility. Such a difference in age can by itself affect the pregnancy outcome. In order to remove this source of error the controls in the present study were matched for age and parity with the subjects of the infertility group.

As regards pregnancy complications *Newton et al (1978)* and *Verma and Patel (1987)* found a higher incidence of spontaneous abortion and ectopic pregnancy in the patients conceiving after infertility which is in accordance with our study but *Verma and Patel (1987)* also found a higher incidence of hypertensive disease of pregnancy which may only be due to the difference in the age of the study group and the control group. Also contrary to above mentioned studies, more patients in our study group had antepartum haemorrhage and intrauterine foetal death but the overall incidence

of complications was not increased in patients who conceived after history of infertility.

The incidence of preterm labour (28%) was significantly higher in women conceiving after prior infertility in this study as compared to controls. Other workers like *Newton et al (1978)* and *Verma et al (1987)* however did not find any such difference. Multiple births are more common in pregnant women with history of infertility directly in relation to ovulation induction drugs. This was observed in our study as well as by *Verma et al (1987)*. Still births and neonatal deaths were significantly more common in the infertile group than in the control group thus making the perinatal mortality also higher in the study group. No other author has found a higher still birth rate in the previously infertile women. In the present study major congenital malformations were seen only in the subjects conceiving after infertility though not related to ovulation induction drugs. *Rajan (1987)* however reported a higher rate of foetal anomalies in patients who conceived after ovulation induction.

Verma et al (1987) showed high incidence of low birth weight (13%) in the infertile group. However *Newton et al (1978)* found no difference in the birth weights in the 2 groups. We also found that incidence of low birth weight is significantly higher in the study group (39.4%) as compared to controls (20.2%). The higher incidence of preterm delivery may be responsible for it. The number of babies having severe IUGR was also higher in study group as compared to the control group.

As attempt has been made to evaluate the high risk factors for perinatal outcome in pregnancies following a period of infertility. In spite of the extensive antenatal, intranatal and postnatal care, the perinatal mortality is significantly higher in women with previous infertility. Perhaps any amount of care cannot nullify the intrinsic compromised fertility potential in these patients and thus the perinatal outcome has to remain a little inferior to that in the patients without a history of infertility.

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