GENITAL BACTERIAL FLORA IN PRETERM LABOUR CORRELATION WITH PERINATAL OUTCOME

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ABSTRACT

Few studies are available on the role of anaerobic genital infections in the etiology of preterm labour. In the present study cervical swabs were taken from 20 women in advanced preterm labour, and the type of infection was correlated with the perinatal outcome. The anerobe isolation rate was 40% in the study group and 27% in the control group, and these patients had a significantly higher incidence of poor perinatal outcome ($p < 0.01$). The aerobe isolation was similar in both groups and the infection was not associated with low apgar scores at birth. Polymicrobial cultures were common in the preterm labour group. Anerobes may play a significant role in the etiology of preterm labour.

INTRODUCTION

Preterm babies constitute two-thirds of low birth weight babies and are responsible for 75% of the perinatal mortality (Fuchs 1976). The important factor in assessing risk is the patient's obstetric history, which makes prediction impossible in primigravidas (Kind, 1987; Hibbard, 1987). Few studies are available regarding the role of anaerobic genital infections in the etiology of preterm labour. The present study was carried out in primigravida patients coming in the premature labour. The aim was to study the aerobic and anaerobic flora in preterm as well as in normal labour and to correlate the type of infection with the perinatal outcome.

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PATIENTS AND METHODS

Twenty women in preterm labour formed the study group, and 11 women in labour at full term served as the control group. The women selected in both groups were matched for age and parity. Tocolysis was not done in any of the patients. Cervical swabs were taken under aseptic precautions, and transported in Robertson's cooked meat medium (RCM). Processing of the sample was done on the following media : brain heart infusion agar with hemin and vitamin K, brain heart agar with 0.1 neomycin, blood agar, MacConkey and chocolate agar. The media were incubated aerobically and anaerobically at 37°C. Identification was done by standard methods.

RESULTS

The average gestation in the study group was 34.5 weeks, while in the control group it was 38

weeks.

The spectrum of organisms isolated in both groups is shown in Table I. The anaerobic isolation rate was 40% (8/20) in the study group and 27% (3/11) in the control group. In 4 cases, two from each group, only anaerobes were isolated. The organism isolated was peptococcus sp in all. In one patient Bacteroides sp were also isolated. All four had babies with growth retardation, three had fetal distress in labour and mild birth asphyxia. The patient with both Peptococcus and Bacteroides gave birth to a stillborn fetus. Patients with anaerobic infection were more prone to have babies with low apgar scores and poor perinatal outcome (X^2 9.9, $p < 0.01$) Table IV).

Aerobes were isolated from 40% (8/20) in the study group and from 55% (6/11) in the control group. Two of the eight patients (25%) who grew aerobes had intrauterine growth retardation and low apgar scores at birth. The organisms isolated were aureus and Strep fecalis. In the normal group, none had small for gestational age babies and there was no birth asphyxia (Table II).

Polymicrobial etiology was seen in 30%

Table - I

Spectrum of organisms isolated in the preterm and normal groups of patients

Organism	Preterm labour		Normal labour		Difference
	No.	%	No.	%	
Only aerobes	8	40	6	55	n.s.
Only anaerobes	2	10	2	18	n.s.
Both	6	30	1	9	$p < 0.05$
Contaminants	4	20	1	9	n.s.
No growth			1	9	n.s.
Total	20	100	11	100	

Table - II

Aerobic organisms isolated from patients in normal and preterm labour and perinatal outcome

Organism	Preterm labour			Normal labour *
	No.	IUGR	Birth Asphyxia	No.
Staph aureus	3	1	1	0
Coag negative Staph	0			1
Strep fecalis	2	1	1	1
Strep viridans	3			0
Non-hemolytic Strep	1			1
Klebsiella sp	5			2
Enterobacter sp	0			1
Pseudomonas sp	0			1
Micrococci	1			2
ASB	5			2
Total	20			11

* No baby had IUGR or birth asphyxia

Table - III

Aerobic organisms grown from cervical swab cultures in normal and preterm and perinatal outcome

Organism	Preterm		Labour Birth	Normal		labour Birth
	No.	IUGR	Asphyxia	No.	IUGR	Asphyxia
Bacteroides	2	2	2	0		
Bacter melaningogenicus				1		
Peptococcus sp	3	3	3	2	2	2
Clostridia sp	2			0		
Gram positive nonsporing bacilli	1			0		
Total	8/20	5	5	3/11	2	2

Table - IV

Correlation of apgar score with genital infection

	Cases	Low apgar	Normal apgar	Significance
Total cases	31	9	22	
Aerobes	14	5	9	
No aerobes	17	4	13	n.s.
Anaerobes	11	7	4	
No anaerobes	20	2	18	$p < 0.01$
Any growth	25	9	16	
No growth	6	0	6	n.s.
Both	7	3	4	
One/no growth	24	6	18	n.s.

(6/20) of the patients with preterm labour as compared to only 9% (1/11) of patients in the control group. Three of the babies born to patients from the study group had mild birth asphyxia, but none had intrauterine growth retardation. In the normal group, all the babies had good birth weights and apgar scores.

No growth, or contaminants only, were obtained in 20% of cases in the study group and 18% in the control group.

DISCUSSION

There are several causes for prematurity. However, in a large number of cases, no cause can be found. High risk factors can be helpful in patients with a previous poor obstetric history. However, in primigravidas, prediction is impossible (Hibbard 1987). In the present study the role of genital infection as a cause for premature labour was studied especially in primigravidas and women with a previous normal child coming in preterm labour during this pregnancy.

Our results indicate that patients who have genital infection with anaerobes are likely to give birth to babies with low apgar scores. These are more pathogenic than the aerobic organisms

as was evident from the perinatal outcome. Anerobic infection with peptococci and bacteroides was associated with low birth weight for gestational age, fetal distress, low apgar scores as well as perinatal death.

There was no statistically significant difference in the aerobe isolation rate in the two groups. This supports the belief that aerobic organisms can be present as normal vaginal flora and under certain conditions can become pathogenic (Choudhary Talwar 1987).

The incidence of both aerobes and anaerobes existing together was significantly higher in the labour group. However, there was no significant effect on the perinatal outcome except mild birth asphyxia.

The present study thus suggests that anaerobic infection may be associated with patients in premature labour and larger studies need to be carried out to establish the role of these organisms.

CONCLUSION

Anaerobes may play a significant role in the etiology of preterm labour.

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