

PREVALENCE OF SIGNIFICANT BACTERIURIA IN PRETERM LABOUR

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SUMMARY

Significant bacteriuria has been documented by some investigators to be a cause of premature labour. A prospective study was carried out in 75 preterm and 50 term cases to find out the difference in prevalence of significant bacteriuria in the two groups. Incidence of significant bacteriuria was observed to be three times (36%) in preterm group than in term group (12%). *E. coli* with its incidence of 16% and 6% respectively in preterm and term groups was the commonest isolate in the urine followed by *Klebsiella pneumoniae* with 13.33% and 4% incidence in 2 groups. Nalidixic acid was the most effective drug with 73.70% microbes in study group and 50% in control group being sensitive to it. Norfloxacin gave 66.66% and 50% response rate in two groups respectively. Hence routine midstream urine examination for bacteriology and sensitivity is recommended in pregnancy and urinary anti-septics are advocated in bacteriuria patients to lower incidence of preterm labour.

Introduction

Preterm labour that is onset of true labour pains before 37 weeks of pregnancy is seen in about 10% pregnancies. Significant bacteriuria both clinical and sub-clinical increases the incidence of preterm labour (Pritchard et al, 1985). Kass (1956) introduced the concept of asymptomatic significant bacteriuria (10^5 organisms per ml of urine) in diagnosis of urinary tract infection (UTI) stating that this number

was reliable evidence of bacteria multiplying in the urine thus helping to distinguish infection from contamination.

Present prospective study was conducted to find out the co-relation between significant bacteriuria and preterm labour.

Material and Methods

A total of 75 preterm patients admitted in Obstetrics ward of Medical College and Hospital, Rohtak from March, 1988 to March 1989 were taken into study. The patients having other cause of preterm labour like hydramnios and multiple preg-

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nancy etc. were excluded from the study. Another 50 patients of normal term labour were studied as control cases. Detailed history was taken in all the patients and a thorough clinical examination was performed. Investigations carried out were as under: Hb, TLC, DLC, complete urine examination, blood sugar - fasting and postprandial, blood urea and high vaginal swab for culture and sensitivity. Mid-stream - urine was sent for bacteriological examination and culture sensitivity tests.

All babies born were examined for weight and Apgar scoring. All patients of preterm labour were followed up for evidence of infection clinically or by leucocytosis.

Results

Mean age, parity, period of gestation, mode of delivery, birth weight, perinatal mortality and urinary symptoms in patients in the present study are shown in Table I. Urinary culture was sterile in 64% (48 cases) in study group in comparison to

TABLE - I
SHOWING CHARACTERISTICS OF PATIENTS IN TWO GROUPS

Sl. No.	Characteristics	Study group	Control group
1.	No. of patients	75	50
2.	Mean age	19.1 years	20.5 years
3.	Mean parity	2	3
4.	Mean period of gestation	35.3 weeks	39.2 weeks
5.	Mean birth weight	2.05 kg.	2.95 kg.
6.	PNM (%)	34	14
7.	Mode of delivery:		
	— Vaginal deliveries	92%	90%
	— LSCS	8%	10%
8.	Symptoms of UTI	33.33%	16.66%

TABLE - II
SHOWING BACTERIOLOGY OF URINE IN TWO GROUPS

Sl. No.	Microbe	Study group		Control group		Statistical significance
		Total No. of cases	%age	Total No. of cases	%age	
I.	Sterile	48	64.00	44	88.00	p<0.01
II.	Bacterial	*27	36.00	6	12.00	p<0.01
1.	E.coli	12	16.00	3	6.00	p<0.05
2.	Klebsiella pneumonia	10	13.33	2	4.00	p<0.01
3.	Proteus mirabilis	8	10.66	1	2.00	p<0.01
4.	Pseudomonas aeruginosa	4	3.33	—	—	p<0.05
Total cases		75		50		

* Some cases yielded more than one organism

88% (44 cases) in control group ($p < 0.01$). Bacteria could be isolated in 36% (27 cases) in preterm group and 12% (6 cases) in term group, a statistically significant difference. *E. coli* was the commonest pathogenic bacteria isolated in both the groups with 16% (12 cases) and 6% (3 cases) incidence respectively in the two groups. *Kl. pneumoniae* was second common bacteria with 13.33% (10 cases) and 4% (2 cases) incidence in the preterm and term groups respectively. *Proteus mirabilis* could be grown in 10.66% and 2% cases, *Pseudomonas* in 3.33% and zero cases respectively in the two groups as shown in Table II.

Nalidixic acid gave best results *in vitro* in both the groups with 73.70% bacteria being sensitive to it in the study group and 50% in control group. Norfloxacin also gave good results with 66.66% and 50% sensitivity in two groups. Nitrofurantoin gave 33.33% results in both the groups. 11.11% bacteria in study group were resistant to all the drugs tested *in vitro*. Sensitivity to other drug is shown in Table III.

Out of 27 cases having significant bacteriuria in study groups only 9 (33.33%) had symptoms of urinary tract infection in the form of fever, burning micturition and frequency of micturition. Other 18 patients (66.66%) were asymptomatic while in control cases only one case out of six (16.66%) had clinical symptoms of urinary tract infection.

Discussion

Bacteriuria has been thought by some investigators frequently to cause premature labour and in turn increased neonatal morbidity and mortality. In an early study by Kass (1965), the incidence of premature births, defined as a birth weight of 2500 gms or less, among 95 women with bacteriuria who received only placebo during pregnancy was 27%, whereas among 84 women with bacteriuria who were treated with antimicrobial agents, the rate was only 7 percent. Corresponding rates of perinatal deaths were 14 percent and zero respectively. Kincaid Smith and Bullen (1965) also reported a relatively high proportion of infants of low birth weight among untreated bacteriuric

TABLE III
SHOWING SENSITIVITY TO DRUGS IN THE TWO GROUPS

Sl. No.	Drug	Study group		Control group	
		Total cases	%age	Total cases	%age
1.	Nalidixic acid	*20	73.70	*3	50.00
2.	Norfloxacin	18	66.66	3	50.00
3.	Nitrofurantoin	9	33.33	2	33.33
4.	Gentamycin	6	22.22	1	16.66
5.	Cotrimoxazole	6	22.22	2	33.33
6.	Resistant to all	3	11.11	Nil	Nil

* Some organisms were sensitive to more than one drug.

patients, but these investigators were unable to reduce this proportion significantly with antimicrobial therapy (21.5 percent compared to 17.3 percent). However, Wilson et al (1966) and Whalley (1967) were unable to corroborate the alleged relation between bacteriuria and low birth weight and prematurity.

Moller et al (1984) demonstrated that women with group B streptococci in their urine have a significantly increased risk of premature rupture of fetal membranes and premature delivery. Premature rupture of membranes occurred in 35% and premature delivery in 20% of 68 women who had group B streptococci in their urine.

McGrady et al (1985) observed that risk of prematurity in infected women with no history of foetal loss was 2.4 times that in control group. Fetal mortality was

also 2.4 times the rate for normal babies. Low birth weight infants were twice more frequent than in control term pregnancies. Our Results are also similar and we could find three times (36%) incidence of bacteriuria in preterm group than in control group (12%).

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