

RISK FACTORS OF PUERPERAL MORBIDITY ASSOCIATED WITH CAESAREAN SECTION

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SUMMARY

The incidence of postcaesarean morbidity was retrospectively studied in 154 patients during one year. The overall morbidity was 26.62%. Post-operative endometritis was found in 14.28%, bacteriuria in 8% and wound infection in 9.2%. A significant correlation was found with the rate of endometritis and duration of labour, number of vaginal examinations and duration of rupture of membranes. Extremes of maternal age, multiparity, anaemia, lack of antenatal care and low socio-economic status also correlated with rate of post-operative endometritis.

Material and Methods

The patient material consisted of 154 patients undergoing caesarean section in Unit I, Department of Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer from July 1981 to August 1982. During this period there were a total of 1752 deliveries, rate of caesarean being 8.8%. The indications of caesarean are given in Table 1. The following data were noted—age, socio-economic status, parity, antenatal care, general health status including haemoglobin estimates, duration of labour and duration of rupture of membranes. The operative technique in all caesarean was of low transverse incision in isthmus part of uterus. General anaesthesia was used. The patients were not routinely catheterised.

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Accepted for publication on 23-3-86.*

Febrile morbidity was defined as a temperature in excess of 38°C on at least two successive readings 8 hours apart excluding the first 24 post-operative hours. Patients who satisfied the above criteria were subclassified as follows.

(a) endometritis—fever, abnormal lochia or uterine tenderness, with or without positive endometrial culture;

(b) urinary tract infection—positive urine culture with or without dysuria, with or without fever;

(c) wound infection—cellulitis or exudate with positive culture from incision site, with or without fever. All patients considered to be infected were treated with appropriate anti-biotics.

Results

Of 154 patients included in this study 41 (26.62%) developed postpartum infectious complications (Table II) Endo-

TABLE I

A. ELECTIVE

1. Contracted pelvis and cephalo-pelvic disproportion	14
2. Malpresentation	1
3. Repeat caesar	5
4. Placental insufficiency and intra-uterine growth retardation	3
5. Precious baby	6
6. Cicatrisation of vagina	1
	30

B. EMERGENCY

1. Contracted pelvis and Cephalo-pelvic disproportion	19
2. (a) Threatened rupture	13
(b) Rupture uterus	3
3. Uterine inertia, incoordinate uterine action, and cervical dystocia	13
4. Antepartum haemorrhage	11
(a) Placenta praevia—10	
(b) Accidental Hemorrhage—1	
5. Malpresentation	14
6. Repeat Caesar	6
7. Foetal distress	39
8. Cord prolapse	3
9. Premature Rupture of membranes and failed induction	3
	124

TOTAL:

metritis occurred in 16.12% of emergency caesarean as compared to 6.66% in elective operations. Patients in labour for more than 24 hours before operation had a morbidity rate of 3.63% as compared to 24.70% morbidity in patients who were in labour for less than 8 hours.

TABLE II

1. Endometritis	22
2. Wound Sepsis	5
3. U.T.I.	12
4. Mastitis	1
5. Diarrhoea	1
Total:	41

The risk of morbidity increased from 18.18% in patients with less than 8 hours rupture of membranes prior to caesarean to 58.33% in patients with over 24 hours rupture of membranes. More than 5 vaginal examinations increased rate from 22.72% to 50.00%. It is probable that number of pelvic examinations act only as a covariable of infection alongwith duration of labour. Rate of endometritis also increased with extremes of maternal age, anaemia, multiparity, lack of antenatal care and low socio-economic status (Table III).

Discussion

Awareness of problem of post-caesarean morbidity has increased. Recently investigators have reported rates ranging from 13.59% (Kreutner *et al* 1979; Phelan and Pryum, 1979; Sweet and Ledger, 1979). A review of literature shows that many factors are considered that predispose such a high rate of infection including socio-economic status, age, obesity, lack of antenatal care, prior labour or rupture of membranes. pelvic examinations and internal fetal monitoring. Sohlberg and Goodlin (1967) with post-operative endometritis. Morrisson *et al* (1973) found increase in febrile complications after 12 hours of labour, more than 5 vaginal examinations and durations of rupture of membranes. Kreutner *et al* (1979) and Gibbs *et al* (1978) also found a correlation of duration of rupture of membranes with post-caesarean morbidity but Green and Sarubbi (1977) and D'Angelo and Sokol (1980) found no such relation. Internal fetal monitoring did not affect morbidity rate in study of Gibbs *et al* (1978) in contrast to reports by Larsen (1974) and Hagen (1975). However, few studies have attempted to differentiate the significance of these various factors. Such dif-

TABLE III
Shows Risk Factors for Puerperal Morbidity Following Caesarean Section

Risk factors	Total cases	Complicated cases	Percentage of complicated cases	Significance
<i>Urgency of operation</i>				
Elective	30	10	33.33	P<0.05
Emergency	124	33	26.61	
<i>Antenatal care</i>				
Booked	125	29	23.20	P<0.005
Unbooked	29	14	48.27	
<i>Socio-economic group/Social class</i>				
Upper I, II	81	19	23.56	P<0.05
Middle III, I	61	19	31.15	
Lower V, VI	12	5	41.67	
<i>Anaemia Hb in gm%</i>				
Less than 7	9	5	55.52	P<0.05
7 to 9	20	10	50.00	
More than 9	123	28	22.76	
<i>Age group (in years)</i>				
Below 20	3	2	66.66	P<0.001
20 to 25	99	22	24.24	
26 to 30	40	10	25.00	
Above 30	12	9	75.00	
<i>Parity</i>				
Primi	48	17	36.96	P<0.02
2 to 4 para	97	21	21.65	
5 and above para	9	5	55.55	
<i>Duration of labour (Hours)</i>				
Elective	30	10	33.33	P<0.001
Less than 8	53	11	20.75	
8 to 16	48	11	22.91	
16 to 24	10	2	20.00	
Above 24	11	7	63.63	
<i>Interval since rupture of membrane (Hours)</i>				
0 to 8	120	14	11.66	P<0.02
8 to 16	18	4	22.22	
16 to 24	4	0	0	
More than 24	12	4	33.33	
<i>Number of vaginal examinations</i>				
0 to 4	132	17	12.87	P<0.50
5 and above	22	5	27.27	

ferentiation becomes important in view of recent studies which advocate that prophylactic antibiotics can reduce the incidence of febrile morbidity after caesarean section. Rothbard *et al* (1975) recom-

mend prophylactic antibiotics for all patients while Kreutner *et al* (1979) restrict their use to selected high risk patients.

This study attempted to identify the patient at risk for developing infection, in

particular endometritis, after caesarean section. Such a high risk group may benefit from antibiotic prophylaxis. Unless an increased risk of infection after caesarean section can be demonstrated routine antibiotic prophylaxis should be discouraged. Strict antiseptic techniques will decrease infection without subjecting the patient to risk associated with administration of antibiotics. A prospective study to evaluate the effect of antibiotic prophylaxis in selected patients at risk of infection after caesarean section is presently underway in our institution.

References

1. D'Angelo, L. J. and Sokol, R. J.: *Obstet. Gynec.* 55: 319, 1980.
2. Gibbs, R. S., Jones, P. M. and Wilder, L. J. Y.: *Obstet. Gynec.* 52: 193, 1978.
3. Green, S. L. and Sarubbi, F. A.: *Obstet. Gynec.* 49: 686, 1977.
4. Hagen, D.: *Obstet. Gynec.* 46: 260, 1975.
5. Kreutner, A. K., Del Bene, V. E. and Delamar, D.: *Am. J. Obstet. Gynec.* 134: 925, 1979.
6. Larsen, J. W., Goldkrand, J. W., Hansen, T. M. and Miller, C. R.: *Obstet. Gynec.* 43: 838, 1974.
7. Morrisson, J. C., Coxwell, W. L. and Kennedy, B. S.: *Surg. Gynec. Obstet.* 136: 425, 1973.
8. Phelan, J. P. and Pryun, S. C.: *Am. J. Obstet. Gynec.* 133: 474, 1979.
9. Rothbard, M. J., Mayer, W. and Wystepak, A.: *Obstet. Gynec.* 45: 421, 1975.
10. Sohlberg, O. S. and Goodlin, R. C.: *Pacific Med. Surg.* 75: 54, 1967.
11. Sweet, R. L. and Ledger, W. J.: *Am. J. Obstet. Gynec.* 134: 925, 1979.