EPIDEMIOLOGY OF GROUP B STREPTOCOCCAL COLONISATION IN PREGNANT WOMEN IN SOUTH KANARA DISTRICT

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SUMMARY

A.prospective study was carried out to determine the prevalence of Group B Streptococcal colonisation in 2700 pregnant women and to evaluate the correlation between the cervicovaginal carriage of this organism and demographic factors, obstetrical findings and coinfection with other organisms. In our study greater risk of colonisation of female genital tract by Group B Streptococcus was found to be significantly influenced by ethnic characteristics eg: Muslim community, (P> 0.001) lack of literacy, (P >0.001) advancing age (P< 0.05, statistically not significant) and parity (P > 0.001), obstetrical complications and coinfection with Neisseria gonorrhoeae.

INTRODUCTION

Since early 1960's the beta hemolytic streptococcus belonging to Lancefield Group B has been recongnised as a common pathogen in serious neonatal infection (Baker et al 1973). Two clinically and epidemiologically distinct type of illnesses have been described among neonates and infants with Group B Streptococcal infection (Baker et al 1973, Franciosi et al 1973). The early or acute onset type (less than 10 days of age) is characterised by high incidence of maternal obstetrical complications especially premature labour and prolonged rupture of membranes (Baker et al 1973, Franciosi et al 1973).

This study is to ascertain the incidence and variable pattern of cervico-vaginal colonisation by Group B Streptococcus in pregnant women of South Kanara District of Karnataka state, South India and its

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Accepted for Publication on 5.7.95

association with obstetrical complications.

MATERIALS AND METHODS

2700 pregnant women attending the gynaecology outpatient and inpatient department of Lady Goschen Hospital Mangalore were investigated during a 4 years period from August 1990 to September 1994.

Using serum-coated cotton-tipped swab sticks materials were collected from the endocervix and vaginal fornix. They were then subjected to microbiological analysis which included smear examination by Gram staining and culture methods as described by Baker et al (1973). Identification of Group B Streptococcus was confirmed by coagglutination technique. The results are subjected to Chi-square test for checking significance of each factor.

RESULTS

Cases were analysed with respect to race, literacy, parity, gestational age, obstetrical complications and associated coinfection. The results are presented in the tables.

DISCUSSION

Many of the findings of this report confirm to those of Regan et al (1991) although they were based on markedly larger population. We noted a significantly greater risk of colonisation among Muslim women compared with Hindu and Christian women (Table I) (although statistical analysis revealed a low Christian predominance which may be due to the paucity of total number studied). The frequency of obstetrical complications (Fig.1) could be a possible cause. Secondly, early marriage that still remained prevalent among Muslim women could work as an additional contributing factor, an argument based on previous studies in which isolation rates were found to be higher in sexually experienced than virginal females (Regan et al, 1991). The low prevalence of Group B Streptococcal colonisation among Christian women observed is difficult to explain. However, ethnic or genetic factors may be important as reported in pregnant Mexican-American women in whom lower carriage rates than in other patients have been confirmed (Regan et al 1991).

Table I
Group B Streptococcus in Relation of Religion

Religion	No.of cases	GBS +ve	Percentage
Hindu	1692	246	14.54
Muslim	660	120	18.18
Christian	348	24	6.89

P = < 0.001 significant

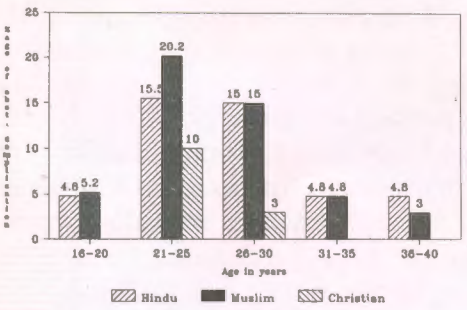

Fig. 1 : Obstetrical complication in relation to age and religion

Age and parity are found to affect the maternal Group B streptococcal colonization. Our analysis of parity demonstrated an increased risk of colonisation with increasing parity (Table II). Older women were at highest risk of Group B Streptococcus colonisation than younger age group (Table III). But age distribution proved statistically insignificant ($P > 0.05$).

Education was found to be associated with the incidence of Group B Streptococcal colonisation of the maternal genital tract. We noted a significant increase in the Group B Streptococcal colonisation rate in the illiterate group and in women with fewer than 7 years of schooling (Table IV). Women with more education were at moderately decreased risk and this may explain for the low rate of Group B Streptococcal colonisation observed in Christian women 6.89% with a high literacy rate and high rate of colonisation 18.18% in Muslim women with a low literacy rate.

In the previous studies carried out on co-infection with other organisms several investigators had not found any association between other organisms and Group B Streptococcus. No difference in colonisation with Group B Streptococcus was found among patients with gonorrhoea or trichomoniasis as compared with patients without sexually transmitted disease (Wallin Forsgsen 1975). But another study (Regan et al, 1991) noted a higher prevalence of Group B Streptococcus among women infected with N. gonorrhoeae. However we noted a positive association of Group

Table II
Group B Streptococcus in Relation to Parity

Parity	No.of cases	GBS +ve	Percentage
Gravida I	1182	144	12.18
Gravida II	564	84	14.89
Gravida III	438	66	15.07
Gravida IV	204	36	17.65
Gravida V	120	24	20.00
Gravida VI	114	24	21.05
Gravida VII or more	78	12	15.38

P= < 0.001 significant

Table III
Group B Streptococcus in Relation to age

Age in Years	No.of cases	GBS +ve	Percentage
16-20	354	42	11.86
21-25	1200	162	13.5
26-30	906	138	15.23
31-35	186	36	19.35
36-46	54	12	22.22

P=>0.05 not significant

Table IV
Group B Streptococcus in Relation to Education

Education	No.of cases	GBS +ve	Percentage
Illiterate	1254	222	17.17
Upto 7th Standard	1188	156	13.13
Upto 10th Standard	258	12	4.65

P= >0.001 significant

Table V
Group B Streptococcus Prevalence and Presence of Other Organisms

Organisms	Colonised		Non colonised	
	No.of cases	Percentage	No.of cases	Percentage
Neisseria gonorrhoeae	180	31.57	390	28.88
Candida	90	24.18	282	20.88
Gardnerella vaginalis	6	1.61	366	29.33
Trichomonas vaginalis	0	0	36	3.33

Table VI
Maternal Obstetrical Complications Related to Group B Streptococcus Colonisation

Obstetrical factor	Colonised		Non colonised	
	No.	Percentage	No.	Percentage
Prolonged rupture of membranes (> 24 hrs)	36	24.61	342	14.80
Premature onset of labour (< 37 weeks)	42	10.76	168	7.27
Perinatal fever	30	7.69	60	2.79

B Streptococcus with N.gonorrhoeae and Candida and a negative association with T.vaginalis and G.vaginalis (Table V).

We found that obstetrical complications like premature onset of labour (< 37 weeks), prolonged rupture of membranes (> 24 hours) and post-partum infection occurred more often among colonised than non-colonised women (Table VI).

ACKNOWLEDGEMENT

We are grateful to Prof.N.C. Ananthkrishna for giving constant encouragement to carryout this work. We are thankful to our technical assistants Miss. Anuradha Baliga and Mrs. Shobha S. for helping in processing this data.

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