

TOBACCO AND PREGNANCY

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SUMMARY

A preliminary survey on tobacco use during pregnancy was conducted at N. Wadia Maternity Hospital, April 1987. Five Hundred women were interviewed. Thirty three per cent of them used tobacco, nearly 95 per cent were habituated to tobacco in tooth powder. Thirty nine percent of husbands of these 500 women used tobacco either smoking or chewing it as also in tooth powder/paste, in varying proportions. One hundred seventy eight women had already delivered singleton live born babies. The Low Birth Weight incidence for the hospital was 46.63 per cent. In women who used no tobacco, the LBWs were 36.28%, and amongst those who consumed tobacco in pregnancy, the LBWs were 64.62%. The proportion of female babies of LBWs in tobacco users was much higher than that in the non-users. This survey has shown a high proportion of pregnant women on tobacco, and has indicated an increased incidence of LBWs in tobacco users. The survey warrants further and indepth study on tobacco and Pregnancy.

Introduction

In India, the incidence of Low Birth Weight (LBW) babies amongst singleton live new-borns varies from 10% to nearly 50%, majority of centres reporting from 30 to 40%. Many factors like sociobiological, cultural, maternal medical and obstetrical, as well as foetal, are responsible, singly or together, for the high prevalence of LBW. That the LBWs have more early neonatal and late neonatal deaths, and also considerable infant mortality, is well known (Mehta, 1986). Mental retardation

and physical handicaps in children born with LBW are noted with greater frequency than in children born with normal birth weights (Lingam, 1985). These morality and morbidity figures point to the urgent need to reduce LBW babies, and in achieving Health for All by 2000 AD. Government of India has set a target of reducing LBWs from 30% to 10% by that year.

Multipronged approach is necessary to reduce the incidence of LBWs. Some measures are more easily applied than others, and prevention is undoubtedly better than management of LBW baby. Amongst the better known social factors

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which carry a high risk, and yet, which may be effectively controlled, in developed countries, is smoking. Not much work is done in tobacco habit in pregnancy in our country; in fact only three authentic studies (Krishnamurthy, 1987) of this nature are reported in India. Since smoking is not a frequent form of tobacco consumption in India, it needs to be established whether other modes of tobacco intake in pregnancy, may lead to harmful effects to foetus or not. The answers to the prevalence of tobacco use in different manners and the consequent bad results in perinatal outcome have yet to come.

Objects of the Preliminary Survey

The objects for undertaking the present survey, were:-

1. To establish the prevalence of tobacco use in pregnancy by women and their spouses,
2. To note the modes of consumption of tobacco in pregnancy, and,
3. To determine the incidence of LBWs amongst the tobacco users and the non-users.

Material and Methods

Five hundred pregnant women attending Nowrosjee Wadia Maternity Hospital were interviewed for tobacco habit in them and their spouses. As many delivered cases with singleton live births, as could be, were included, and the remaining interviews were conducted in the antenatal clinics. All patients belonged to the free wards. The second author has personally conducted all the interviews.

322 (64.4%) women were from the antenatal clinics and 178 (35.6%) were delivered cases. There was no exclusion of a case once the interview was commenced.

The survey was conducted during the first fortnight of April 1987.

Results

Prevalence: Of the 500 women interviewed, 167 consumed tobacco during pregnancy; 158 used it by applying to teeth and gums, 8 chewed tobacco, and only one smoked. (Table - I)

195 husbands of these 500 women consumed tobacco while their wives were pregnant; 41 applied it to teeth and gums,

TABLE - I
SHOWING PREVALENCE OF TOBACCO USE IN
PREGNANCY N. WADIA MATERNITY HOSPITAL, 1987

Interviewed 500 :	Women Users of Tobacco	167 - 33.4%		
	Men Users (Singly 103)	195 - 39.00%		
	Neither User	230 - 46.00%		
<i>Manner of Tobacco Use</i>	<i>Women Users</i>		<i>Husbands Users</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Tooth/Gum Powder	158	94.61	41	21.03
Chewing	8	4.79	86	41.10
Smoking	1	0.6	68	34.87
	167		195	

86 chewed it, and 68 smoked tobacco. 98 men took tobacco by more than one mode.

The details of distribution of tobacco consumption is seen in Table II. While in 46% neither partner had tobacco habit, the overlap of the habit was noted in 18.4%.

TABLE - II
SHOWING DISTRIBUTION OF TOBACCO
USERS IN 500 CASES AT N. WADIA
MATERNITY HOSPITAL, 1987.

Distribution of Tobacco Users	No.	Percentage
Women only	75	15.00
Women and Husbands	92	18.40
Husbands only	103	20.60
Non-Users	230	46.00

Low Birth Weight Babies and Tobacco use in Pregnancy

While several indicators of poor perinatal outcome are available, the most standard and popular is the Low Birth

Weight. This indicator is accounted for in this survey.

Of the 178 singleton live births amongst the free ward patients, 83, had LBW, i.e. equal to or less than 2500 gms. The incidence of LBWs was thus 46.63%.

65 of these 178 singleton deliveries had occurred in maternal users of tobacco during pregnancy, and 113 in maternal non-users.

Of the 83 LBWs, 42 were in maternal tobacco users and 41 in non-users ($P = 0.0005$). The estimated relative risk for low birth weight in offsprings of maternal users of 'smokeless' tobacco was 3.2 (Table - III).

Stratification of the definition of LBW into those new-borns of 2 kg or less, and those greater than 2 kg to 2.5 kg, yielded difference, which remained statistically significant (Table-III) although the strength of the difference decreased. Relative risks in the two groups were esti-

TABLE - III
SHOWING LOW BIRTH WEIGHT INFANTS AND THEIR GENDER BY
MATERNAL TOBACCO USE - N. WADIA MATERNITY, 1987.

Singleton Newborns-Live	Maternal Tobacco		Statis Sig.	OR*
	User	Non-user		
Total Births	65	113	Total Cagegy	-
LBW-2500gm & less	42	41	$P < 0.001$	3.2
Normal BW-more than 2.5 K	23	72	Baseline	1.0
Stratifying LBW				
BW 2000 gm & Less	12	7	$P > 0.001$	5.37
BW 2.1 to 2.5 kg	30	34	$P = 0.005$	2.76
Stratifying on Gender				
Males with LBW	12	18	$P > 0.10$	2.09
Females with LBW	30	23	$P < 0.0005$	4.08
Male:Female Ratio of Newborns (n:100)	80.6	105.5	-	-
Females				

*Odds Ratio

mated to be 5.37 for a birth weight less than 2.0 kg, and 2.76 for a birth weight from 2-2.5 kg.

Interestingly, stratification of all LBWs by gender showed male LBWs were not significantly associated with maternal tobacco use ($P > 0.10$ and or 2.09). Female LBWs, in contrast, were significantly associated with maternal tobacco use in pregnancy ($P < 0.0005$) with four-fold estimated relative risk. If, as is well documented, the male foetus is more susceptible to intrauterine anoxia than the female, the ratio of male to female newborns may indicate the occurrence of such deleterious influences in pregnancy. The male:female ratio of new-borns was 80.6 in offsprings of tobacco users compared to 105.5 in those of non-users (Table - III).

Finally, the impact of tobacco consumption by couple in pregnancy may be noted by referring to Table IV. The rate of LBWs in the absolute non-users of tobacco is minimum, and it is highest when both partners of pregnancy consumed tobacco.

foetal parameters, no definite conclusions can be reached until larger numbers are included and cases are matched for other influences affecting foetal weight, and other foetal indicators.

That nearly 33% of pregnant women attending NWMH consumed tobacco was indeed an eye-opener. The prevalence of the habit of applying tobacco on teeth and gums was very high amongst the communities reaching NWMH, and on questioning, the habit was formed several years ago and the application was done most often at least twice a day. Tobacco was not, perhaps, used for cleansing the teeth, but more so to get "kick" out of the contents of tobacco.

Krishna, 1978, had reported that his study had shown a 15.8% incidence of tobacco use in pregnancy, and all were chewing it. His population was in Pune region. Verma et al, 1983, studied a population in Jabalpur, and large majority of pregnancy women ingested tobacco, rather than applying on gums or keeping in the

TABLE - IV
SHOWING DISTRIBUTION OF 178 BIRTHS BY TOBACCO USE
AND LOW BIRTH WEIGHTS - N. WADIA MATERNITY, 1987.

Tobacco Use by	Total Births		Low Birth Weights	
	No.	Percent	No.	Percent
Mother alone	23	12.92	13	56.52
Mother + Father	42	23.56	29	69.05
Father alone	40	22.47	18	45.00
Neither	73	41.01	23	31.51

Discussion

This preliminary survey and study had limited objectives. While trends are being shown of the consumption of maternal and paternal tobacco during pregnancy, and on their likely effects on one of the

buccal recesses. The manner of tobacco use hence seems to vary in different regions in India.

Both the above quoted authors have reported significantly lower birth weights in offsprings of tobacco users as compared

to those in non-users. Krishna suggests that this effect on birth weight is due more to early gestation delivery. Krishna has also reported differential sex ratios among new-borns of women using tobacco and those not using it; the male:female ratio 80:100 in tobacco users and 108.5:100 in the non-users. The deleterious influences in pregnancy tend to reduce differentially the number of male fetuses born, and though not a consistent feature in studies on smoking in pregnancy, some studies have shown it clearly (Herriott, 1962).

Many compounds have been identified in tobacco and it still remains to be shown which ones are harmful to the foetus, when tobacco is consumed as tooth/gum power, is used buccally or is ingested in the stomach directly.

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