Original article

Untoward obstetric outcome among Smokeless Tobacco (ST – Mishri) users in Western Maharashtra

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Abstract:

Background: Use of tobacco and new products is increasing not only among men but also among children, teenagers, women of reproductive age group. Mishri (ST) is one among them. Smoking is an established cause of adverse pregnancy outcome. There are indications that using smokeless tobacco could be as detrimental to fetal health as cigarette smoking. ***Objective:*** To compare the outcome of pregnancy among women who were using Mishri during pregnancy and those not using it at Krishna hospital, Karad. Materials and ***Methods:*** Pregnant women using Mishri during pregnancy were selected for study from Krishna hospital, Karad and equal numbers of pregnant women not using tobacco were selected as comparison group after matching for age and parity. ***Observations:*** The proportion of pregnant women using Mishri during pregnancy was 12%. A significant number of users was found to be anemic (69.8%). Significantly higher number of Mishri users experienced complications like Oligohydramnios, fetal distress, delivery before EDD (91.9%) and birth of Low birth weight babies (81.7%) with short stature and increased Ponderal Index. ***Conclusion:*** Special attention should be given to avoid or at least reduce the use of Mishri during pregnancy as a part of routine antenatal care to reduce the adverse perinatal outcome.

Keywords: smokeless tobacco (ST); Mishri; pregnant women; anaemia; low birth weight; length at birth; Ponderal Index

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Introduction:

Tobacco use is widely recognized as one of the leading threats to global health. Historically, the prevalence of smoking among women in the developing world has been very low, in part because of strong cultural constraints against women's smoking[1]. The use of new tobacco products is increasing not only among men but also among children, teenagers,and women of reproductive age group, Mishri is one among them[2]. Mishri is prepared by roasting tobacco leaves, principal constituent alkaloid nicotine being 1 to 7%. Various studies have estimated the prevalence of the use of Mishri from 17% - 45%[3,4]. Smoking is an established cause of adverse pregnancy outcome. It is associated with higher rates of abortion, ectopic pregnancy, still birth, placenta previa, abruptio placentae, premature rupture of membranes, preterm birth, intrauterine growth retardation and sudden infant death syndrome[3,5]. Low birth weight and preterm birth are powerful determinants of morbidity and mortality in newborn babies and infants. It has been known for last few decades that babies born to mothers who smoke weigh less than babies whose mothers don't. There are indications that using smokeless tobacco could be as detrimental to fetal health as cigarette smoking[6].

Objective

To compare outcome of pregnancy among women using Mishri and not using Mishri during pregnancy at Krishna hospital, Karad

Material and Methods:

The study was conducted in Krishna hospital for the period of six months (from 01st January to 30th June 2011). All pregnant women admitted to Krishna hos-

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pital for delivery and using Mishri (ST) during pregnancy were enrolled as study subjects and those pregnant women who were not using any form tobacco as control subjects after matching for age and parity. Data collection was done by using a structured and pretested proforma on the day of delivery, which included personal profile, socio-demographic profile, obstetrics profile, details of delivery and its outcome and anthropometry of newborn babies. Statistical analysis was done for significance and association. Informed verbal consent from the pregnant women and clearance from Institutional ethical committee and hospital administration was obtained prior to the study.

Results:

A total of 12% (258) of hospital deliveries were found using Mishri (ST) during pregnancy in six months of study period. Equal numbers of control subjects were selected after matching for age and parity.

Among all the users 29% were teenagers, 68% were primis, 78% were housewives, and 77% belonged to class III according to modified B.G Prasad classification. There was no significant difference between users and nonusers of Mishri (ST) regarding these variables.

Significant numbers of Mishri (ST) users were found anemic at the time of delivery compared to nonusers of Mishri (ST). Mean hemoglobin (g%) was found significantly less (t=-15.24, p=0.000) among users (10.4±0.90) compared to nonusers of Mishri (ST) (11.6±1.05). The complications like oligohydramnios and fetal distress was found to be significantly more among users of msihri although Pregnancy Induced Hypertension (PIH), past history of spontaneous abortion was found more among users as compared to nonusers did not reach the level of statistical significance (table I).

Table I: Comparison of complications associated with pregnancy.

Variables	Mishri (ST) users (n=258)	Non Mishri (ST) users (n=258)	Total (n=516)	X^2 value	p value
	Number (%)	Number (%)	Number (%)		
Anaemia Present Absent	180(69.8) 78 (30.2)	42(16.3) 216 (83.7)	219 (42.4) 297 (57.6)	144.58	0.000
Oligohydramnios Present Absent	17(6.6) 241 (93.4)	07(2.7) 251 (97.3)	24 (4.6) 492 (95.4)	4.37	0.037
Fetal distress Present Absent	29(11.2) 229(88.8)	14(5.4) 244(94.6)	43 (8.4) 473 (91.6)	5.70	0.017
Pregnancy Induced Hypertension Present Absent	22(8.5) 236 (91.5)	15(5.8) 243 (94.2)	37 (7) 479 (93)	1.42	0.232
Past history of spontaneous abortion Present Absent	11 (4.3) 247 (95.7)	07 (2.7) 251 (96.5)	18 (3.5) 498 (96.5)	0.92	0.337

Significant number of users of Mishri (91.9%) delivered before the expected date of delivery compared to nonusers of Mishri (74.4%). Mean number of days before EDD among users was found to be 5 which was significantly less compared to nonusers (2.2 days) (t=8.64, p=0.000).

There was no significant difference in relation to type of delivery, outcome of pregnancy and gender of the baby. The apparently higher rate of still births

Table II: Comparison of obstetric outcome among users & nonusers of Mishri (ST)

Variables	Mishri (ST) Users (n=258)	Non Mishri (ST) users (n=258)	Total (n=516)	X^2 value	p value
	Number (%)	Number (%)	Number (%)		
Delivery					
Before due date	237 (91.9)	192 (74.4)	429 (83.1)	7.674	0.006
On due date (EDD)	15 (5.8)	50 (19.4)	65 (12.5)		
After due date	06 (2.3)	16 (6.2)	22 (4.4)		
Type of delivery					
Vaginal	209(81)	204(79.1)	413 (80)	.303	0.582
Operative	49 (19)	54 (20.9)	103 (20)		
Outcome					
Live birth	253(98.1)	256(99.2)	509 (98.6)	.579	0.447
Stillbirth	05 (1.9)	02(0.8)	07 (1.4)		
Gender of baby					
Male	112(43.4)	134(51.9)	246 (47.6)	3.76	0.052
Female	146 (56.6)	124 (48.1)	270 (52.4)		

among users as compared to nonusers of Mishri was not found statistically significant (table II).

Significant number of Mishri users (81.7%) delivered babies with birth weight less then 2.5kg compared to nonusers (6.2%) ($?^2 = 299.7$, p<0.000). Mean birth weight (Kg) of babies born to Mishri users was about 600gm lesser than babies born to nonusers of Mishri. A significant number of babies born to Mishri users (82.9%) were found to shorter than babies born to nonusers of Mishri (1.9%) ($?^2 = 346.5$, p<0.000). The Ponderal Index of newborn babies was calculated by the formula PI=birth weight (gm) x 100 / (length at birth in cm)^3 & found that Ponderal index of babies born to the mothers using Mishri was significantly higher than the babies born to the nonusers.(X^2=12.03,p<0.000).

Table III: Anthropometric profile of babies born to subjects.

Variables	Mishri (ST) users (n=258)	Non Mishri (ST) users (n=258)	t value	p value
	Mean ± S.D	Mean ± S.D		
Birth weight (Kg)	2.2 ± 0.24	2.8 ± 0.27	-25.33	0.001
Length of baby (Cm)	43 ± 5.4	52 ± 1.8	-24.14	0.001
Ponderal index	2.857 ± 1.207	1.948 ± 0.216	12.03	0.0001

Discussion:

The study revealed that 12% of pregnant women have been using Mishri during pregnancy among all hospital deliveries, which is lower as compared to that observed by Gupta P.C[6] (17%) and Pardeshi et al[7] (51%), however, Global Adult Tobacco Survey Report India 2009-10[8] has shown the prevalence of Mishri use among women in Maharashtra to be 8%.

Pardeshi et al[7] have also found that 27.3% teenage pregnant women,

48% illiterate, 90.9% housewives, 35% pregnant women from lower class have been using Mishri during pregnancy, which is similar to our observations.

Gupta P.C[6] have found anaemia among 68.6% of pregnant women using smokeless tobacco compared to nonusers (16.3%) & Pardeshi et al[7] have found it to be 44.2% vs. 37%, which is comparable to our finding. Mean hemoglobin (g%) was found to be 10 by Subramanhya S[9] among smokeless tobacco users which is almost similar to that of present study10.4 (g%). This is substantiated by the findings of Subramanhya S[10] who have reported that Anaemia was significantly associated with smokeless tobacco (OR=1.7; 95% CI=1.2-2.5).

Pratinidhi et al[3] in their previous study have demonstrated that fetal distress and Pregnancy induced hypertension is significantly associated with Mishri use. The present study revealed similar trend.

Gupta P.C[6] have previously observed that delivery took place 6.2 (days, mean) before the EDD among the ST users which was reported to be 5.6 (days) by Pardeshi et al[7] and in the present study it is 5 (days). This suggests ST use might be linked to relatively early delivery by nearly one week than the EDD. Pratinidhi et al[3] also have found the Relative Risk of preterm delivery among smokeless tobacco users to be 2.8 times higher than nonusers which has been 1.4 in the study by Gupta et al[6].

Pratinidhi et al[3] have demonstrated 19.3% LBW babies among Mishri (ST) users compared to 9% among nonusers where as proportion has beeen found to be 28.6% and 19.9% respectively by Gupta P.C[6]. However in the present study proportion of LBW babies has been found to be exceptionally high i.e.,81.7% among the babies of ST users as compared to 6.2% among nonusers. Babies born to ST users has been found to be 400 (g) lighter by Pratinidhi et al[3] and Pardeshi et al[7] and 189 (g) by Gupta P.C[6]. In the present study ST user mother has delivered babies 600 (g) lighter that the babies of nonuser mothers.

No studies have so far found to compare the length of babies at birth among Mishri (ST) users compared to nonusers of Mishri (ST). There have been studies[11-14] stating higher and lower Ponderal Index among newborns of smokers as compared to newborns of nonsmokers respectively. This is due to differential reduction in weight and length of the foetuses due to nicotine effect of the smoking by the mothers. In the present study the Ponderal Index is significantly higher among the newborns of mothers using Mishri (ST) as compared to the newborns of the non users of Mishri (ST) indicating more nicotine effect on length as compared to the weight of the baby.

Hoque et al[5] in their study, conducted in Bangladesh, have found the rate of still birth of about two times higher among smokeless tobacco users as compared to nonusers ($p<0.001$). They have also found that frequency of preterm deliveries, LBW, spontaneous abortions are significantly more among smokeless tobacco users as compared to non users. In the present study we have found a significantly high proportion of preterm and LBW babies born to ST users as compared to the non ST users.

Conclusion:

Use of Mishri is increasing among women who are pregnant and is not only known to affect general health but also pregnancy and its outcome. So special attention need be given to avoid or at least reduce the use of Mishri during pregnancy as a part of routine antenatal care.

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