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RESEARCH ARTICLE

EVALUATION OF POSTPARTUM FEMALE STERILIZATIONS: A RETROSPECTIVE STUDY AT TERTIARY CARE HOSPITAL IN JAMMU

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Abstract

Background: Female sterilization is a surgical procedure which permanently prevents pregnancy; it works by blocking the fallopian tube and hence it is also known as tubal ligation. However, female sterilization can be performed at puerperal or postpartum period.

Methods: In this retrospective study, we will analyze the postpartum female sterilizations and evaluate the factors that play significant role among women for this option.

Results: During the study period, out of 33219 women only 7701 opt for sterilizations, we observed that educational level, sex of new born child at different parity and previous procedural techniques significantly affects postpartum sterilization.

Conclusion: These finding show that the voluntary sterilization depends on so many factors like education, parity, sex of new born child and previous procedures. However, in order to curtail the high maternal mortality graph, there must be counseling cells which will help women to attain feasible health benefits and consequently help to reduce maternal mortality.

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Introduction:-

In India every year, approximately 28 million women experience pregnancy and around 26 million have a live birth. However, roughly around 67000 maternal and one million neonatal deaths occur each year. The pregnancy and child birth process is not a straight forward medical phenomenon; mortality and morbidity due to pregnancy related issues have a huge and grave impact on Indian women. In India levels of maternal mortality vary greatly with respect to different regions because of different health care setup. According to maternal death review report, maternal mortality ratio (MMR) has shown a significant decline in MMR from 398/100,000 in the year (1997-1998) to 254/100000 live births in (2004-06). However, to further decline MMR and achieve best maternal health standard goals, we need to focus on maternal death contributing factors and one of them is unwanted multiparity of women. Even though sterilization is one of the most straight forward surgical procedures an obstetrician-gynecologist performs, it is always challenging when considered from social and ethical point of view. However, female sterilization can be adopted to prevent women from unwanted conception and hence limit the number of offsprings. Married couples often choose sterilization, with female sterilization remains the most common in proportion with their male counter parts.

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Statistical Methods:-

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Statistical software SPSS (version 20.0) and Microsoft Excel were used to carry out the statistical analysis of data. Continuous variables were expressed as Mean $\pm$ SD and categorical variables were summarized as percentages. Chi-square test was employed for comparison of categorical variables. A P-value of less than 0.05 was considered statistically significant. All P-values were two tailed.

Results and Observations:-

Table 1:- Distribution of mothers as per status of sterilization done.

Sterilization	Number	Percentage
Done	7107	21.4
Not done	26112	78.6
Total	33219	100

Table 1, show the status of sterilization adopted by mothers whereby we observe that only around (21.4%) opt for sterilization and (78.6%) did not went for it.

Table 2:- Age distribution of females went for sterilization.

Age (Years)	Number	Percentage
25-29	119	1.7
30-34	1509	21.2
35-39	4589	64.6
≥ 40	890	12.5
Total	7107	100
Mean $\pm$ SD=36.9 $\pm$ 8.73		

Table 2, displays the age distribution of mothers who went for sterilization, we observe that most commonest age group for sterilization constituting about (64.6%) is (35-39) years, followed by (21.2%) in (30-34) years and the less common (1.7%) sterilization age group is (25-29). Only around (12.5%) women went for sterilization who 40 or more than 40 years old.

Table 3:- Parity wise distribution of females went for sterilization.

Parity	Number	Percentage
Para 2	2601	36.6
Para 3	3429	48.2
Para 4	749	10.5
$\geq$ Para 5	328	4.6
Total	7107	100

Table 3, reflects the parity distribution of females who went for sterilization, we observe that around (48.2%) females had 3rd parity followed by (36.6%) with para 2. Around (10.5%) females had 4th para and only (4.6%) females had more than Para 4.

Table 4:- Literacy wise distribution of females went for sterilization.

Educational status	Number	Percentage
Illiterate	2532	35.6
Primary	1804	25.4
Secondary	2074	29.2
College	697	9.8
Total	7107	100

Table 4, show educational status of studied patients, we observe that out of 7107 female sterilizations only (9.8%) patients were having college level education and around (29%) had secondary level education rest of the patients were either illiterate or had attended only primary school education.

Table 6:- Association of female sterilization with preceded procedure.

Condition/Procedure preceded by sterilization	Total No. of females	No. of female succeeded with sterilization	
		No.	%age
LSCS	13920	1503	10.8
Normal delivery	14001	3511	25.1
MTP	3651	651	17.8
Hysterotomy	151	151	100
Ectopic pregnancy	509	304	59.7
Interval sterilization	987	987	100
Total	33219	7107	21.4

Chi-square=5695.8; df=5; P-value<0.001

Table 6, show association between female sterilization and preceded procedure, we observe that most common female sterilization corresponds to hysterectomy. Out of 509 ectopic pregnancies around 60% get their sterilization done successfully, similarly from a total 987 interval sterilization (100%) get their sterilization done completely. Only (10.8%) went for successful sterilization after LSCS. Out of a total of 14001 normal deliveries around (25%) get their sterilization done. The variation in the proportion of previous procedure and corresponding female sterilization makes the association significant with a p value of <0.001*

Table 7:- Association of female sterilization as per parity.

Parity	Total No. of females	No. of female went for sterilization	
		No.	%age
Para 2	14873	2601	17.5
Para 3	14011	3429	24.5
Para 4	3138	749	23.9
≥ Para 5	1197	328	27.4
Total	33219	7107	21.4

Chi-square=251.1; df=3; P-value<0.001

Table 7, displays that there is a significant difference between parity and female sterilization, we observe that highest percentage of female sterilization (27.4%) has been performed on those women who had >5th parity followed by (23.9%) sterilizations for females with 4th parity. Likewise (24.5%) and (17.5%) went for female sterilization at para 3 and para 2 respectively.

Table 8:- Association of female sterilization as per educational background.

Educational status	Total No. of females	No. of female went for sterilization	
		No.	%age
Illiterate	13205	2532	19.2
Primary	8303	1804	21.7
Secondary	9208	2074	22.5
College	2503	697	27.8
Total	33219	7107	21.4

Chi-square=108.2; df=3; P-value<0.001

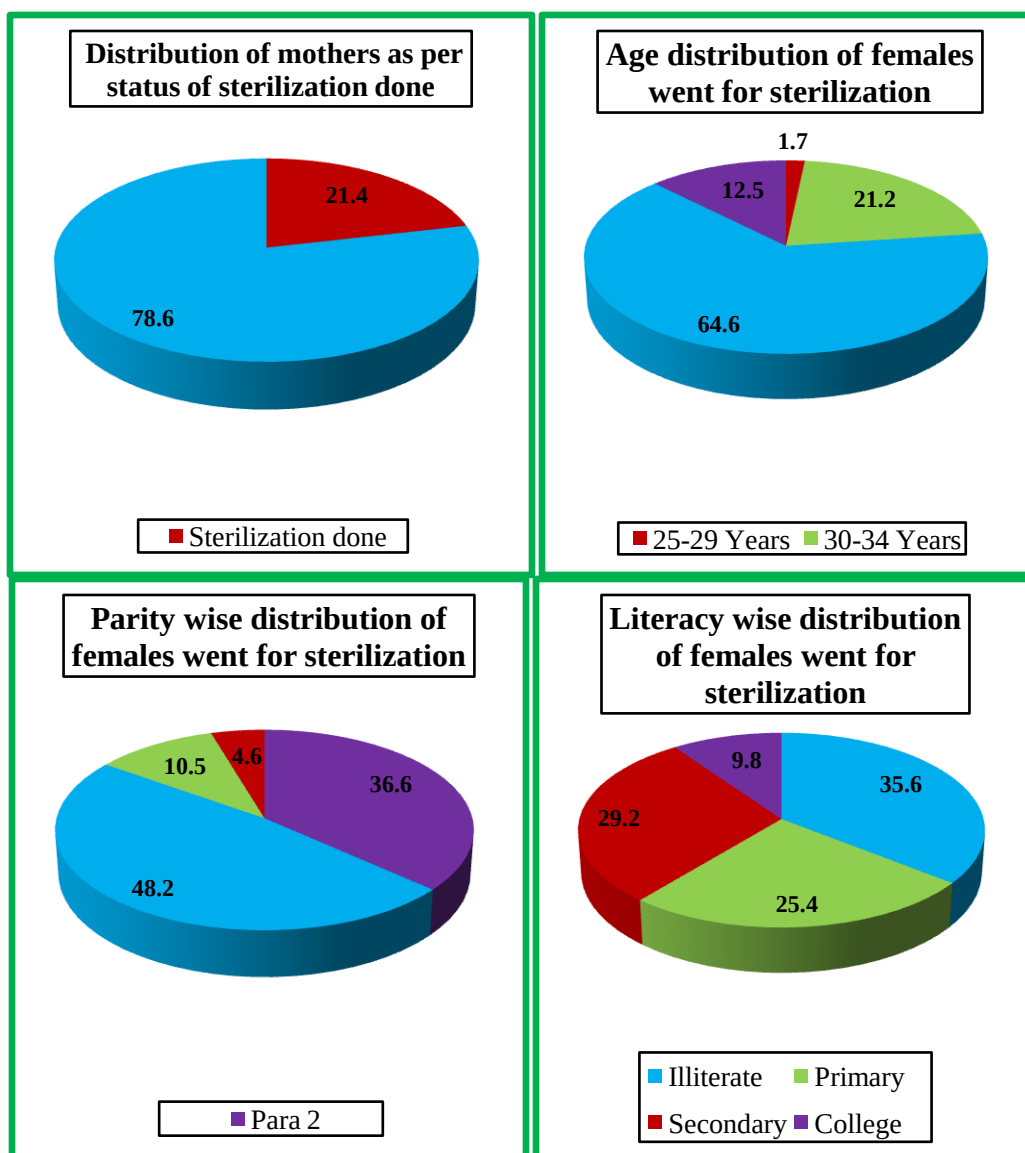
Table 8, show that there is a significant difference between educational status and female sterilization; we observe that (27.8%) of women went for female sterilization who had college level education, (22.5%) of women who opt for sterilization were having secondary level educational qualification rest of the women who went for sterilization were either illiterate or primary educated.

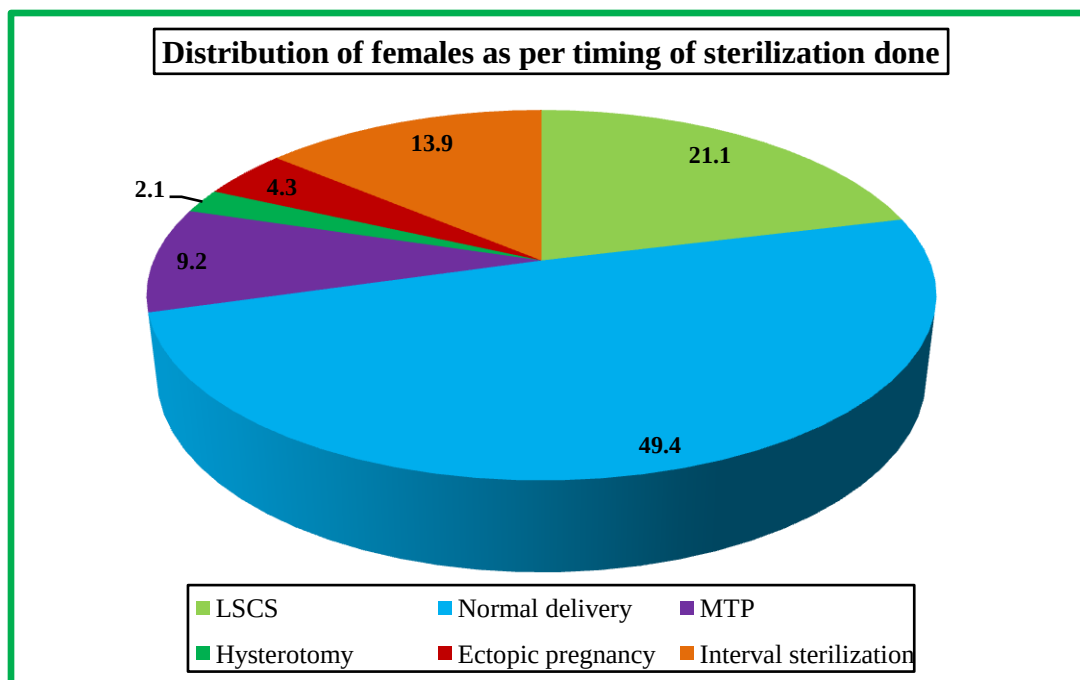
Table 9:- Association of female sterilization with presence of male child.

Parity	Presence of male child	Total No. of females	No. of female went for sterilization		Chi-square (P-value)
			No.	%age	
Para 2	Yes	9371	2170	23.2	564.1 (<0.001)
	No	5502	431	7.8	
> Para 2	Yes	14495	4289	29.6	942.3 (<0.001)

	No	3851	217	5.6	
Total		33219	7107	21.4	

Table 9, show percentage of female sterilizations performed at para 2 corresponding to presence of male child is larger (23.2%) as compared with the presence of female child. Similarly, the percentage of female sterilization were larger (29.6%) corresponding to the presence of male child as compared with the presence of female child (5.6%) at para (>2). This shows that there is a strong statistical significant difference between parity stages with respect to male sex and no of sterilization performed.





Discussion:-

In the present study on the implications of female sterilization, we observed that total female sterilization rate in the present study is around (21.4%). Out of this female sterilization rate, most of the women were falling in the age interval of (35-39) years and less frequent sterilizations were performed in the age interval of (25-29) years of age. The mean age of women who opt for sterilization was observed as (36.9 ± 8.73) years. Some of the studies due to Chan et al ^[1] and Thurman et al ^[2] reported (8-9%) sterilization rate after all live births. In order to curtail the infant mortality rate resulting from lack of care and poverty, some states in India have two child policy ^[3] but in this study, we observe that out of 7107 sterilizations around (48.2%) were 2nd para followed by (36.6%) with 2nd parity. Around (10.5%) females had 3rd para and only (4.6%) females were having 4th parity. Much similar observations were made by Rakhi et al ^[4], in their study (47.14%) women who went for sterilization were 3rd para, around (37%) were 2nd para and (11.38%) sterilizations were reported to have 4th parity. We observed that there is a significant difference between female sterilizations performed and previous procedures adopted. Out of 509 ectopic pregnancies around (60%) get their sterilization done, from a total 987 interval sterilization (100%) get their sterilization done completely. Only (10.8%) went for sterilization after LSCS. Out of a total of 14001 normal deliveries around (25%) get their sterilization done. Fernandes et al ^[5] reported in their study that intrapartum tubal ligation was higher when there is cesarean section for last delivery. However Rakhi et al ^[4] reported that women who were operated for hysterectomy and ectopic pregnancy performed maximum sterilization which is similar to what we observed. Dhanapal et al ^[6] reported that out of 6069 patients, 77.67% went for cesarean tubectomy and around 22% underwent for sterilization by postpartum where as Mutahir and Nyang^[7] reported 15.9% cesarean tubectomy. In the present study we find a significant association in between parity and number of female sterilization, we observe that there is highest percentage of female sterilization (27.4%) were performed on those women who exceeds 5th parity followed by (23.9%) sterilizations for females with 4th parity. Similarly (24.5%) and (17.5%) went for female sterilization at 3rd and 2nd para respectively. Likewise Rakhi et al ^[4] also observed a significant difference between parity and number of female sterilization. However, they reported maximum number of sterilizations for those women who were having 2nd parity followed by 4th and 3rd parity. We find an association between the proportion of sterilizations performed and educational background which came out to be significant, it was observed that maximum sterilizations (27.8%) were opted by those of women who had college level education followed by (22.5%) of women who were having secondary level educational qualification rest of the women who went for sterilization were either illiterate or primary educated. But contrary to this, Dhanpal et al ^[6] reported that of all the sterilizations performed (50.83%) had primary education, (19.45%) had secondary level education, (14.48%) had college level education and (15.22%) were illiterate. On the other hand Rakhi et al ^[4] made much similar observations on sterilizations performed with respect to educational background; they also reported a significant

difference between the number of sterilizations performed and educational background. We analyzed the impact of male child on sterilization and observed that there exists a strong statistical significant difference between parity stages with respect to male sex and no of sterilization performed. (23.2%) sterilizations were performed on women who had male child at 2nd parity as compared with female child constituting about (7%) of sterilizations. Similarly, the percentage of female sterilizations were larger (29.6%) corresponding to male child birth at (>2nd parity) as compared with (5.6%) sterilizations with respect to female child birth. Rakhi et al ^[4] observed similar kind of observations; they revealed that male child preference plays a significant role in sterilizations. Other authors like Reddy et al ^[8] and Malhi et al ^[9] also reported similar observations with regard to association of male child and preference for sterilizations.

Conclusion:-

The present study revealed some interesting results; out of around (26%) female sterilization rate most of the women are college level educated and the birth of new born child's sex at (2nd and > 2nd) parity plays a significant role on sterilization option among women. The previous procedural condition preceding sterilization also impacts significantly on the preference of sterilization among women. These finding show that the voluntary sterilization depends on so many factors like education, parity, sex of new born child and previous procedures. However, in order to curtail the high maternal mortality graph, there must be counseling cells which will help women to attain feasible health benefits and consequently help to reduce maternal mortality.

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