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RESEARCH ARTICLE

COMPARISON OF MATRENAL AND FETAL OUTCOME IN CAESAREAN SECTION AND VAGINAL DELIVERY AT TERTIARY CARE CENTRE

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Abstract

Objective: The aim of the study was to compare the maternal and fetal outcome associated with caesarean sections and vaginal delivery.
Methods: A total of 1048 women with caesarean section were compared with the next parity- and age-matched women presenting in spontaneous labor. Maternal and neonatal outcome were the main outcome variables of interest. Maternal outcome variables included wound infection, puerperal sepsis and postpartum hemorrhage. Neonatal outcome were captured by Apgar score, Neonatal icu admission , Respiratory distress syndrome and the occurrence of neonatal sepsis.
Results: A significantly higher rate of Urinary tract infection (n = 45 vs. 14, p = 0.0006) and wound infections (n = 92 vs. 4, p = 0.0004) could be detected in the caesarean section group in compare of vaginal delivery. A singnificant correlation found in Neonatal ICU admission (95 vs 56 , p value =0.01) and respiratory distress syndrome (88 vs 40, p = 0.004) in between caesarean sections and vaginal delivery.
Conclusion: Overall neonatal and maternal outcome compared favorably among vaginal delivery versus caesarean delivery. Majority of morbidity in mother and children was associated with caesarean section as compared to vaginal delivery.

Introduction:-

As we known,rate of caesarean section increases in both developed and developing country.According to new data from the World Health Organization (WHO), caesarean section rises continues globally, now accounting for more than 1 in 5 (21%) of all childbirths. Continue increasing over the coming decade, and nearly a third (29%) of all births will takes place by 2030. our goal is reduced the rate of caesarean section without indication and decreased the incidence of complication .Prevalence of the C-section in India was 8.5% in NFHS-3 while data in NFHS-4 show that it has increased to 17.2%. [22] that is inceases over 10 years. According to data 46 per cent of all maternal deaths and 40 per cent of neonatal deaths occur within labour or the first 24 hours after birth. According to data of NFHS 3 out of 40 per cent neonates having complication due to caesarean section like Pre-maturity (35 per cent), neonatal infections (33 per cent), birth asphyxia (20 per cent) and congenital malformations (9 per cent) are among the major causes of new-born deaths (unicef data NFHS 3 and 4, NCRB 2016).

Neonatal period is the most vulnerable time for survival. infants are at highest risk of dying in their first month of life and global rate 18 deaths per 1,000 live births in 2021. Neonatal deaths after the first month and before reachingage 1 was estimated at 11 deaths per 1,000. Increasing trend of caesarean sections are main concern in india . our study

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goal is to reduced the rate of uncessary caesarean section in India. In india having a wide variety of religions, castes and other socioeconomic characteristics and eventually affected the mother's education, literacy, livelihood and health. According to WHO if we are aware the general population about the caesarean sections and its complication and benefit of normal vaginal deliveries then we can achieve the goal and we should try to improve the health care and staff and provide emotional support. we should try to improve the skills in ventous and forceps delivery to avoid the unccessary caesarean section. maternal mortality audit should be done on regular basis and provide the information of complication of caesarean section and rate of caesarean section.over the period of time improving the health facilities in institution and increased healthcare access having a significant role in caesarean section.although Neonates born by cesarean section are at high risk for transient tachyponea of newborn (TTN), respiratory distress and jaundice and neonatal sepsis than neonates are born by vaginally.Risk of respiratory distress are higher in premature fetus .so betamethasone or dexamethasone can be used for fetal lung maturity to reduced therisk of respiratory distress and other complication.

At hospital setting provide a good training of doctors for the normal vaginal delivery . How to apply ventous and forceps for difficult delivery to avoid unccessary caesarean section and spreading the awareness for complication of caesarean section in general population . when there is no medical indication for the caesarean section then try to avoid the c-section and educate the women about planned vaginal delivery and started at the level of primary health care centre and district health centre primarilyand can be done through primary care providers and frontline workers who are the first point of contact of the pregnant women for ANC care, routine check-ups and visits related to any complications in pregnancy to avoid the fetal and maternal complication after delivery.

Material and Method:-

This study was conducted in the Department of Obstetrics and Gynaecology in Swaroop rani hospital Moti lalnehru medical college ,prayagraj. It was a retrospective study done for a period of 1 year from may 2022 to april 2023 with the underlying aim to assess comparisonof maternal and fetal outcome between caesarean delivery and vaginaldelivery at tertiary care centre. The present study reported that maternal and fetal outcome in comparison between caesarean section and vaginal delivery at tertiary care hospital in terms of maternal outcomes like postpartum hemorrahage , perpureal sepsis, wound infection ,postpartum fever,urinary tract infection and fetal outcomes like respiratory distress syndrome, ,low Apgar score,neonatalICU admission, neonatal sepsis.we excluded the patient delivered a congenital anomalous baby either by normal vaginal delivery or caesarean section .and those patient who already diagnosed with intrauterine fetal demise and include only low risk obstetrics population .

Method:-

We started our study with 1000 patient in department of obstetrics and gynaecologyin Swaroop rani hospital at MLN medical college, Prayagraj. This was retrospective study and data collected by the birth register and admission register of our department.

This was retrospective study includes a random sample of total 1000 pregnant women excluding those having exclusion criteria ,who had caesarean delivery and vaginal delivery . we had evaluate the 1000 patient and divided into two group.A and group B .ATotal of 500 patient had caesarean section and 500 patient had vaginal delivery.The aim of the study was to evaluate maternal and fetal outcome in caesarean delivery and vaginal delivery.

Data Analysis

Data were shown as mean+ standard deviation or as number (percentage).Categorcial variables were compared using chi- sqaure or fisher exact test. Between -group comparison of continuous variables was undertaken using T- test for parametric analysis. P values were calculated and p values <0.005 were considered as statistically significant.

Result:-

We started our study with 1000 random antenatal women excluding those having congenital anomalous fetus . Inour study we had 1000 patients were evaluated. .

Total number of sample size were collected =1000
Number of women who had caesarean delivery =500,

number of women whohad vaginal delivery =500

Table No. 1:- Distribution of pregnant women according to mode of delivery.

Type of Caesarean Section	**No.**	**%**
caesearian section	500	50.00
vaginal delivery	500	50.00
Total	**1000**	**100.00**

Table number 1. Showed that the distribution of pregnant women according to there mode of delivery. We included In our study, 1000 random pregnant women studied in which 50 % had cesarean sections , while 50 % cases had normal vaginal delivery.

Table 2:- Distribution of cases according to age.

Age Group	**caesearian group**		**vaginal delivery**	
	(N=500)		**(N=500)**	
	No.	**%**	**No.**	**%**
18-25 years	230	46.00	152	30.40
26-30 years	200	40.00	320	64.00
30-45 years	70	14.00	28	5.6
Total	500	100.00	500	100.00

Table number 2. showed that distribution of pregnant women according to there age and futher divided into caesarean group and vaginal group .so we found that those pregnant women were having caesarean section , majority of women being in 18-25 years . In 18-25 year age group had caesarean section 46.00% and vaginal delivery occurred only in 30.40 % .while those pregnant women were selected from 26 – 30 years age group had caesarean section in 40.00 % cases and vaginal delivery in 64.00 % cases whereas only 14.00 % cases in caesarean section group and 5.6 % cases as vaginal delivery were found in 30 – 45 years age group. The association between age of pregnant women and type of mode of delivery was significant with P value <0.01 with age group of 18-25 years.

Table 3:- Distribution of Patients According to Indication for Cesarean Section.

Indication	**caesearian section Group**	
	(N=500)	
	No.	**%**
Previous LSCS	48	8.72
Breech	122	22.18
CDMR	210	42.4
Placenta previa	4	0.57
Transverse lie	10	1.81
CPD	32	5.8
Short ICP	20	3.63
Severe preeclamsia +FGR	56	10.81
Uncontrolled blood sugar	32	5.81
Short stature	10	1.81

Table number 3 showed that the distribution of pregnant women according to there indication for caesarean section.

This table shows that caesarean section rate is higher (42.4%) in those women who had caesarean section section on her request due to fear of labour pain and illiteracy uneducation and lack of emotional support and availability of all the facility for caesarean section.

Table 4:- Association of Maternal outcome with caesearian section group and vaginal delivery.

Maternal complication	caesearian section (n=500)		vaginal delivery (n=500)		Chi-Sq.	p-value
	N	%	N	%		
Blood transfusion	56	11.20	22	4.4	12.8	0.0002
Perpueral sepsis	60	12.00	70	14.05	0.68	0.40
Urinary tract infection	45	9.00	15	3.01	14.1	0.0001
Wound infection	92	18.5	4	0.4	74.0	0.0004
Post partum hemorrhage	72	14.4	57	11.4	1.54	0.21

Table number 4 showed that the association of maternal outcome with caesarean section in comparison of vaginal delivery. we compared both groups, maternal complication are higher than the vaginal delivery.in cases of caesarean section blood transfusion required more in comparison of vaginal delivery due more blood loss in caesarean section .out of 500 cases ,56 (11.2%) pregnant women who had caesarean section required blood transfusion while only 22 (4.4%) patient out of 500 vaginal delivery required blood transfusion and significantly correlated p<0.0002.chances of urinary tract infection 45 (9.0%) in caesarean section and 15 (3.01%) in vaginal delivery which were significantly correlated p value <0.001. and risk of wound infection was found in caesarean section in 92 (18.5 %)cases and in vaginal delivery only in 4(0.4%)significantly correlated p value<0.0004.

Table 5:- Associationof Fetal outcome in both groups (n=1000).

Fetal outcome	caeserian section (n=500)		vaginal delivery(n=500)		Chi-Sq.	p-value
	n	%	n	%		
Apgar <7 in 5 min	80	16.0	88	17.6	0.37	0.56
Apgar <5 in min	32	6.40	20	4.00	2.63	0.104
Neonatal icu admission	95	19.00	56	11.26	8.77	0.003
Respiratory distress syndome	88	17.6	40	15.98	15.98	0.00006
Neonatal sepsis	62	12.40	42	8.40	3.48	0.061

*=Significant (p<0.05)

Table number 5 showed association of fetal outcome with caesarean section in comparison of vaginal delivery. we compared both groups, fetal complication along with maternal complication are higher than the vaginal delivery.in cases of caesarean section a newborn suffered from respiratory distress syndrome in comparison of vaginal delivery .out of 500 cases ,88 (17.6 %) fetus who delivered by the caesarean section diagnosed with respiratory distress syndrome with breathlessness and admitted while only 40 (15.98%) newborns in 500 vaginal delivery suffered fromrespiratory distress syndome and significantly correlated p<0.0006.Neonatal care admissson 95 (19.0%) in caesarean section and 56 (11.26 %) in vaginal delivery which were significantly correlated p value <0.003 When both the groups were compared, fetal complication percentage in caesearian group was much higher as compared to the complications in vaginal delivery group. And the results were statistically significant (P value <0.005)

Disscussion:-

Since the caesarean section are on trend in both developed and developing countries due illiteracy and women fearof labor pain and lack of emotional support. Caesarean section can effectively prevent maternal and perinatal mortality and morbidity if it was done for an proper indication and realated morbidity .however , there is no evidence showing the benefit of caesarean delivery for women or infant who have not indicated for caesarean section . AS we known any surgery like caesarean sections are associated with short term and long term risk . further indicaton for caesarean section is previous caesarean section in most of the women beyond the curren delivery affect the health of women , her child and future pregnancy.These risk are higher in women with limited access to comprehenensive obstetrics. (8,9,10)

This is the retrospective study done for 1 year from may 2022 to april 2023 included 1000 random pregnant female who had either vaginal delivery or caesarean delivery at Swaroop rani hospital ,Prayagraj.U.P. Patient were counselled about the risk and benefit of caesarean section ,as many patients are demanding caesarean section.

1. we have collected the data from admission register and birth register in our department .A total 1000 patient were included but some women have been excluded because fetus had some gross congenital anomaly .after the exclusion we had studied over 1000 patient and divided into two groups based on the mode of delivery i.e group 1 included caesearian delivery and group 2 with vaginal delivery.
2. We had studied maternal and fetal outcome in comparison between caesarean section and vaginal delivery. In the present study, 1000 patient studied in which 50.00 % had cesarean sections , while 50.00 % cases had undergone vaginal delivery.
3. Most of the patient who planned for caesarean section were related to the group of age between 18-25 years approximately 46 % cases may be due to increasing trend of caesarean section and fear of labor pain in young generation. most of the patient of this age group had planned for caesarean section due to CDMR (casarean section on maternal request) and group 2 showed vaginal delivery maximum in approximately 64% in age group of 26-35 years in mostly multigravida patient.
4. In our study when we compared both groups, maternal complications incidence in casearian section as blood transfusion required in 56 (11.2 %) women and only 22 (4.4 %) women required blood transfusion in vaginal delivery group already diagnosed with anemia and showed significant correlation in between these groups p value <0.0003 .That means the blood transfusion required in casarean section due to increased blood loss as compared to vaginal delivery .Urinary tract infection percentage 45 (9.0%) in caesarean section cases and 15 (3.01%) were observed in vaginal delivery group and significantly correlated ($p<0.05$). Also when compared in both group wound infection chances were greater in caesarean section 92 (18.5%) and 4 (0.4%) chances in vaginal delivery and significantly correlated in both comparable group ($p =0.0004$) A similar study done by **monikaschindl et al.** 2003, a significantly lower rate of maternal and fetal complications was observed when compared with vaginal birth (5.4% vs. 19.3%; $p <0.0001$). In obstetrics, performing an elective CS in an uncomplicated pregnancy has traditionally been considered inappropriate and any request for such a procedure has been refused.
5. **Devendre and arulkumaran et al. 2004** report that despite dramatic improvement in the safety of anaesthesia and surgery mortality and morbidity rates for mother and child are greater for elective caesarean delivery compared to vaginal delivery .There exists an association of pelvic floor damage during child birth but this cannot be attributed entirely to vaginal delivery and does occur after a casarean birth. In our study caesarean rate are higher due to increased demand of caesearian section on maternal request.
6. In our study we found that the significantly more neonates in planned caesarean group were transferred in neonatal care unit (caesarean section 19.00 % vs vaginal delivery 11.36 %) p value <0.003 were significantly correalted and had respiratory distress syndrome more in caesarean delivery group in comparison to vaginal delivery (caesarean section 17.6 % vs vaginal delivery 11.98 %) p value <0.00006 are signicantly correlated. A study done by **Toril kolas,MD .Ola D,MD et al 2006** a study showed that similar results babies who delivered by the planned caesarean section reqiured NICU care admission (p value <0.001) and had pulmonary disorder (p value <0.01) as compared with spontaneous vaginal delivery and singnificantly correlated between them.

Conclusion:-

In our study we concluded that majority of maternal and fetal morbidity was associated with caesarean section as compared to vaginal delivery and most common indication of caesarean section is previous LSCS and caesarean section on maternal request. So our concerned is to reduced the primary caesarean section to decreases the morbidity and mortality .Operative vaginal delivery (ventous, forceps)may be a better option to reduced the rate of primary caesarean section . And also regular audit should be conducted in health facilities regarding caesarean section , educating the women for planning of birth and provide psychosocial support to relieve pain and anxiety of vaginal birth .These measures can help in reducing the rate of caesarean delivery and its associated maternal and fetalcomplications.But further more studies are required for explaining the risk and benefits of caesarean vs vaginal delivery.

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