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# Gynecology & Obstetrics

Carboprost Versus Oxytocin

Care Centre with Hystero-Laparoscopy

Highlights

Obesity in Pregnancy and Surgical

Evaluation of Infertility Cases Attending

Discovering Thoughts, Inventing Future

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Gynecology and Obstetrics

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# Obesity in Pregnancy and Surgical Techniques

By Dr. Priya Deshmukh & Dr. Sreedevi Paineni

*Abstract-* *Background:* Obesity has become a modern world pandemic. It causes increased morbidity in the postoperative period. Postoperative wound infection being one of the major contributing factors.

*Materials and Methods:* Ours is a prospective cohort studydone at Fernandez Hospital, Hyderabad, a tertiary care hospitalfrom June 2022 to July 2023. We comparedhigh transverse skin incisions and pfannenstielincisions in obese women undergoing caesarean section. There were 436 women in the pfannenstiel incision group and 145 women in the high transverse incision group. Two groups were compared for the outcomes ofwound infection, baby delivery time, blood loss, duration of surgery, APGAR score at 5 minutes, NICU admissions, wound discharge, postoperative hospital stay and postnatal admissions.

*Keywords:* *obesity, caesarean section, pannus, pfannenstiel incision, high transverse incision, wound infection.*

*GJMR-E Classification:* *NLMC: WP 450*


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# Obesity in Pregnancy and Surgical Techniques

Dr. Priya Deshmukh [α] & Dr. Sreedevi Paineni [σ]

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*Results:* Thebaby delivery time, duration of surgery, and blood loss were higher in the High transverse incision group. There were no significant differences between the APGAR score at 5 min and NICU admissions between the two groups. The incidence of wound infection was higher in the pfannenstiel incision group compared to the high transverse incision group. However, the difference did not reach a statistically significant level.

*Conclusion:* High transverse incision can be considered to reduce wound infections inobese women with BMI >35, based on the grading of pannus.

*Keywords: obesity, caesarean section, pannus, pfannenstiel incision, high transverse incision, wound infection.*

## I. Introduction

Obesity has become a major public health problem. About 16% of adults aged 18 years and older worldwide were obese in 2022. According to NFHS-5, 24% (33% in urban and 19% in rural areas) of adult womenwere in the overweight and obese category[1]. Once it was thought of as a problem in high-income countries, recently the issue of overweight and obesity are increasing in low-income and middle-income countries, especially in urban areas. [2] Due to advances in technology and knowledge, more and more obese women in the reproductive age group seeking pregnancy are conceiving with the help of ART. [3] Still, the journey through pregnancy is difficult for these women and they face many antenatal, intrapartum, intraoperative and postnatal as well as foetal and neonatal complications. Some of the problems faced by these women are increased risk of miscarriage, GDM, GHTN, preeclampsia, VTE, increased risk of prolonged labour, caesarean section, intraoperative complications, wound infections, stillbirths, NICU admissions, long-termconsequences on neonate like obesity.[4][5] Obese women have an increased rate of caesarean sections.[6] Obesity is associated with reduced chances of successful TOLAC.[5], [7] There is increased risk of post-operative wound infection following caesarean section in obese women.[6][8] Postoperative wound infections cause significant morbidity in these women. Considering the higher risk of wound complications, clinicians need to be aware of the measures that reduce its occurrence.In ourstudy, we compared two skinincisions of caesarean section, the pfannenstiel incision and the high transverse incision, to find a safer incision that will reduce infection-related morbidity in obese women. There are many studies comparing transverse and vertical skin incisions of caesarean section in the literature. But very few studies compared pfannenstiel and high transverse skin incision. Also, we could not find any such studies in Indian literature done on the Indian population.

*Objectives*

*a) Primary Objectives*

Wound infection

*b) Secondary Objectives*

1) Time from start of surgery to baby delivery time
2) Amount of blood loss
3) Time from start to end of the procedure
4) APGAR score at 5 minutes of birth
5) NICU admissions
6) Postoperative wound discharge
7) Culture-positive wound infections
8) Postoperative hospital stays and postnatal admissions

## II. Materials and Methods

The study was done at Fernandez Hospital, Hyderabad, a tertiary care hospital in South India from June 2022 to July 2023. It is a prospective cohort study comparing high transverse incisions and pfannenstiel incisions in obese women undergoing caesarean section. The sample size was calculated by taking the incidence of wound complications in pfannenstiel incision as 27.08% and in high transverse skin incision as 15.63%, as per the study by Walton et al. The other parameters considered for sample size calculation were 80% power of study and 5% two-sided alpha error. The ratio of the two groups (Pfannenstiel incision group to

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the High transverse skin incision group) was taken as 3:1. The sample size was calculated by using the ClinCalc sample size calculator. (Reference: Kane SP. Sample Size Calculator. ClinCalc: https://clincalc.com/stats/samplesize.aspx. Updated July 24, 2019. Accessed April 30, 2022.)

As per the calculation in ClinCalc, the required sample size was 414 in the Pfannenstiel incision group and 138 in the High transverse skin incision group. On adding a 5% non-response rate, the required sample size was 436 subjects in the Pfannenstiel incision group and 145 in the high transverse skin incision group. We recruited the study population after proper consent in the antenatal period and the type of incision was based on the grading of pannus.

## III. Results

A total of 581 patients were included in the study among which 145 (25%) underwent a high transverse skin incision and 436 (75%) underwent a pfannenstiel incision.

*Table 1:* Comparison of Background Characteristics

| Variables | Total (n=581) | High transverse (N=145) | Pfannenstiel (N=436) | P-value |
|---|---|---|---|---|
| Age (years), Median (IQR) | 31 (28, 34) | 32 (28, 34) | 31 (28, 34) | 0.733 |
| Age group, n (%) | | | | |
| <25 years | 56 (9.6%) | 16 (11%) | 40 (9.2%) | 0.793 |
| 25 to 35 years | 441 (75.9%) | 109 (75.2%) | 332 (76.1%) | |
| 36 to 46 years | 84 (14.5%) | 20 (13.8%) | 64 (14.7%) | |
| BMI (kg/m2), Median (IQR) | 36.51 (35.26, 40.25) | 40.51 (37.73, 44.15) | 35.72 (35.17, 38.66) | <0.001 |
| BMI classification, n (%) | | | | |
| 35 to 39.99 kg/m2 | 428 (73.7%) | 66 (45.5%) | 362 (83.0%) | <0.001 |
| 40 to 49.99 kg/m2 | 144 (24.8%) | 70 (48.3%) | 74 (17.0%) | |
| >=50 kg/m2 | 9 (1.5%) | 9 (6.2%) | 0 (0.0%) | |
| Parity, n (%) | | | | |
| Primiparous | 297 (51.1%) | 73 (50.3%) | 224 (51.4%) | 0.830 |
| Multiparous | 284 (48.9%) | 72 (49.7%) | 212 (48.6%) | |

Age and parity were comparable in the two groups but BMI was higher in the high transverse incision group.The median BMI for the high transverse incision group was 40.51 and for the pfannenstiel incision group 35.72.

*Table 2:* Comparison of Preeclampsia, Gestational Diabetes/Diabetes Mellitus, Gestational Age and Type of Caesarean Section

| Variables | Total (n=581) | High transverse (N=145) | Pfannenstiel (N=436) | P-value |
|---|---|---|---|---|
| Preeclampsia, n (%) | | | | |
| Yes | 113 (19.4%) | 33 (22.8%) | 80 (18.3%) | 0.245 |
| No | 468 (80.6%) | 112 (77.2%) | 356 (81.7%) | |
| GDM/DM, n (%) | | | | |
| None | 308 (53%) | 60 (41.4%) | 248 (56.88%) | 0.009 |
| DM Type 1 | 3 (0.5%) | 0 (0%) | 3 (0.69%) | |
| DM Type 2 | 57 (9.8%) | 20 (13.8%) | 37 (8.49%) | |
| GDM on diet | 89 (15.3%) | 25 (17.2%) | 64 (14.68%) | |
| GDM on OHA | 76 (13.1%) | 28 (19.3%) | 48 (11%) | |
| GDM on insulin | 48 (8.3%) | 12 (8.3%) | 36 (8.26%) | |
| | | | | |
| Gestation, n (%) | | | | |
| Preterm | 109 (18.8%) | 28 (19.3%) | 81 (18.6%) | 0.845 |

| | | | | |
|---|---|---|---|---|
| Term | 472 (81.2%) | 117 (80.7%) | 355 (81.4%) | |
| Type of caesarean section, n (%) | | | | |
| Elective | 284 (48.9%) | 71 (49%) | 213 (48.9%) | 0.981 |
| Emergency | 297 (51.1%) | 74 (51%) | 223 (51.1%) | |

The incidence of preeclampsia, gestational diabetes or diabetes mellitus, gestational age and elective vs emergency caesarean section was comparable in both the study groups.The overall incidence of GDM or DM was more in the high transverse incision group.

*Table 3:* Comparison of Incision to Delivery Time, Time from Start to End of the Procedure and Amount of Blood Loss

| Variables | Total (n=581) | High transverse (N=145) | Pfannenstiel (N=436) | P-value |
|---|---|---|---|---|
| Incision to delivery time (mins), Median (IQR) | 8 (6, 11) | 10 (7, 13) | 8 (6, 11) | <0.001 |
| Time from start to end of procedure (mins), Median (IQR) | 60 (50, 70) | 69 (56, 80) | 58 (49, 65.5) | <0.001 |
| PPH (Blood loss in ml), Median (IQR) | 500 (380, 650) | 600 (480, 790) | 495 (350, 600) | <0.001 |

The incision to delivery time (10min vs 8min, p-value-<0.001), time from start to end of the procedure (69min vs 58min, p-value-<0.001) and amount of blood loss (600ml vs 495ml, p-value-<0.001) were found higher in thehigh transverse skin incision group.

*Table 4:* Comparison of Postoperative Wound Discharge, Wound Swabs Sent and Positive Wound Cultures and Postnatal Admission

| Variables | Total (581) | | High transverse incision (145) | | Pfannenstiel incision (436) | | P Value |
|---|---|---|---|---|---|---|---|
| Wound discharge | Yes | No | Yes | No | Yes | No | <0.001 |
| | 103 (17.7%) | 478 (82.3%) | 49 (33.8%) | 96 (66.2%) | 54 (12.4%) | 382 (87.6%) | |
| Wound swabs sent | 103 (17.7%) | | 49 (33.8%) | | 54 (12.4%) | | <0.001 |
| Positive cultures | 67 (63.8%) | | 28 (58.3%) | | 39 (68.4%) | | 0.284 |
| Variables | Total (581) | | High transverse incision (145) | | Pfannenstiel incision (436) | | P Value |
| Admissions | 6(1.7%) | | 2 (1.3%) | | 4 (0.9%) | | 0.998 |

More women with high transverse incisions had wound discharge compared to the pfannenstiel incision group (33.8% vs 12.4%), but the culture-positive wound infection was more in the pfannenstiel incision group (68.4% vs 58.3%). Postnatal admissions for wound infections were comparable between the two groups.

*Table 5:* Comparison of APGAR Score at 5 min and NICU Admissions

| Variables | Total (581) | | High transverse (145) | | Pfannenstiel (436) | | P value |
|---|---|---|---|---|---|---|---|
| APGAR score at 5 min (IQR) | 9 (8,9) | | 9 (8,9) | | 8 (8,9) | | 0.592 |
| NICU admissions | Yes | No | Yes | No | Yes | No | 0.798 |
| | 47 (8.1%) | 534 (91.9%) | 11 (7.6%) | 134 (92.4%) | 36 (8.3%) | 400 (91.7%) | |

The difference in APGAR score at 5 minutes and NICUadmissionswas not statistically significant between the two groups.

## IV. Discussion

*Age:* The median age in our study was 31years and it was comparable in both groups.In Dias et al [9]study, women with a supra-panniculus transverse skin incision were older (32.9 vs. 30.6, p = 0.002). Walton et al[10]included parturients aged 18-45 years in their study. The average age of participants in the S S Allah study[11] was 31.4 years, the two study groups having no difference.

*Parity:* In our study the number of primipara and multipara in both the groups were comparable.In the study by S S Aallah et al[11], there was no difference in the parity between the two groups in line with our study.

*Mean BMI:* In our study women with high transverse incision had higher median BMI (40.5 vs 35.72). In Walton et al study[10], both the study groups included women with BMI>40. The mean BMI was 49 for both groups. Dias et al[9]had a higher BMI in the high transverse incision group (49.2 vs. 43.3), similar to our study. The average BMI for both groups in S S Allah et al study was 40.7[11]

*Gestational Age:* There was no difference in Gestational age between the two groups in our study. The average Gestational age was 38 weeks in the study by S S Allah[11].

*Other Comorbidities:* In theDias et al[9] study,a higher prevalence of gestational diabetes mellitus (42.6% vs. 21.9%, p = 0.002) was found in suprapannus incision, similarly in our study, the overall incidence of DM and GDM was higher in high transverse incision group.

*Duration:* In our study, Incision to delivery time was comparable in both the groups(9min vs 8min). Duration of surgery was higher in the high transverse incision group (65 min vs 57 min). However, In the study by S S Allah[11], fetal delivery time was less in the suprapannicular incision group (7.87 min vs 8.89 min). The average operating time was 76.01 minutes, with no difference between the two groups. El Agwani[12] found infra-umbilical(below pannus) incision to be easier and quicker compared to supraumbilical incision.

*Amount of Blood Loss:* In our study, blood loss was higher in the high transverse incision group (615 ml vs 495 ml). In the S S Allah et al study[11], the Hb drop was more in the hightransverse incision group (0.76gm vs 0.51 gm). According to El Agwani[12], a supraumbilical incision is associated with more blood loss.

*NICU Admission and APGAR at 5min:* In the Walton et al[10] study, those having a high transverse skin incision had lower median five-minute Apgars (8 min vs 9 min, p-value=0.0021) but similar umbilical artery pH values. NICU admissions were higher for neonates in the high transverse group (28.13% vs. 5.21%, P-value=0.0011). S S Allah study[11] had no difference in NICU admissions similar to our study but the Apgar at 5min was lower in the high transverse incision group.

*Wound Infection:* In the Walton et al[10] study, there was a lower incidence of wound complications in the high transverse group, but this did not reach statistical significance (15.63% vs. 27.08%, p-value=0.2379), in line with our study. In our study, more women with high transverse incisions had wound discharge compared to the Pfannenstiel incision group (33.8% vs 12.4%), but the culture-positive wound infections were more in the Pfannenstiel incision group (68.4% vs 58.3%). S S Allah'sstudy [11] (at 6 weeks postnatal), there was no difference in wound complications between the two incisions. El Agwani, [12] in their article mentioned that the supraumbilical skin incision is associated with more wound infections compared to infra umbilical skin incision. Adrian Salvent Tames, Katherine Romero Viamonte[13], in their case report of a morbidly obese,43-year-old woman with medical comorbidities used infra umbilical suprapannicular skin incision for preterm caesarean section, and suggested thatthe incisioncan be used as an effective alternative in obese patients to reduce the wound infection.Sagi Y et al [14], in their observational study in women with class 3 obesity, reported thatpfannenstiel incision is preferred by most surgeons for emergency as well asnon-emergency caesarean sections in obese women andhigh transverse skin incision does not reduce wound infections in these women. And suggested that incisions should be individualised similar to the study by Kristina Roloff K et al[15]

## V. Conclusion

The purpose of the study was to find a safer incision in obese women undergoing caesarean section to reduce wound infection-related morbidity. We found that the incidence of wound infection was lower in the high transverse incision group. The duration of surgery and amount of blood loss were more in the high transverse incision group. However, there was no difference in foetal delivery time or neonatal outcomes in both groups. We can consider high transverse skin incisions in obese women with BMI >35, depending upon the grading of the pannus.

*Strengths and Limitations:* This can be the reference study for further research in this area as there are no studies in the Indian population.

The study period is short and being a prospective study, it needs to be continued further.

The sample size is small and by increasing the duration of the study, a larger study population can be included.

*Recommendations:* The above limitations can be overcome by continuing the study for a longer duration that will have a larger sample size for analysis.

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# Evaluation of Infertility Cases Attending Tertiary Care Centre with Hystero-Laparoscopy

By Dr. Ruheena Nakhuda & Dr. Yasmin Iqbal

*Abstract-* *Background:* Infertility affects about 10 – 15% of reproductive-age couples. The diagnosis and treatment of this disorder stands out as one of the most rapidly evolving area in the medicine. The majority of pelvic pathology in infertile women is frequently not well appreciated by routine pelvic examinations and the usual diagnostic procedures. The ability in visualizing the uterine cavity, fallopian tubes, ovaries and identifying the possible pathology during laparoscopy and hysteroscopy has made it an essential part of infertility evaluation and therapeutic procedures can also be done in the same sitting.

*Objectives:* Primary objective is to evaluate the role of hystero-laparoscopy in Study of primary and secondary infertility. To identify incidence of various pathological conditions in female reproductive tract leading to primary and secondary infertility. Second objective is to understand the role of hystero-laparoscopy in Re-evaluation of already treated cases and its role in changing management plan.

*Keywords:* *diagnostic hystero-laparoscopy, infertility, ovarian, tubal, uterine, peritoneal, endometriotic, cervical causes, treated cases.*

*GJMR-E Classification:* *LCC: RG201*


*Strictly as per the compliance and regulations of:*

# Evaluation of Infertility Cases Attending Tertiary Care Centre with Hystero-Laparoscopy

Dr. Ruheena Nakhuda [α] & Dr. Yasmin Iqbal [σ]

*Structured Abstract- Background:* Infertility affects about 10 – 15% of reproductive-age couples. The diagnosis and treatment of this disorder stands out as one of the most rapidly evolving area in the medicine. The majority of pelvic pathology in infertile women is frequently not well appreciated by routine pelvic examinations and the usual diagnostic procedures. The ability in visualizing the uterine cavity, fallopian tubes, ovaries and identifying the possible pathology during laparoscopy and hysteroscopy has made it an essential part of infertility evaluation and therapeutic procedures can also be done in the same sitting.

*Objectives:* Primary objective is to evaluate the role of hystero-laparoscopy in Study of primary and secondary infertility. To identify incidence of various pathological conditions in female reproductive tract leading to primary and secondary infertility. Second objective is to understand the role of hystero-laparoscopy in Re-evaluation of already treated cases and its role in changing management plan.

*Material and Methods:* A hospital-based observational study done on 60 infertile women attending the infertility department, who are included in the criteria were women of the reproductive age group (19-40yrs), not conceived despite of regular marital relationship with standard, typical, usual male factors, also who got abnormal results in traditional investigations such as USG, *Follicular Study, Sono-Hystero-Salpingography*, and also Re-evaluation of treated cases and hystero-laproscopy is done in these patients.

*Results:* Of the total 60 women, in 23.5% cases of primary and 15.4% cases of secondary infertility there is no obvious pathology. Tubal pathology is seen in 5.9% and 23.1% cases of primary and secondary and ovarian pathology is seen in 35.3% and 26.9% cases of primary and secondary. Uterine pathology contributes to 38.2% and 38.5% of primary and secondary infertility. Endometriosis 11.8% and 7.7% respectively, tuberculosis to about 5.9% and 11.5% of primary and secondary, peritoneal factors 7.7% in secondary infertility. Therapeutic interventions are done in 43.3% and 50% by hysteroscopy and laparoscopy.

*Conclusion:* Investigation of female infertility is incomplete without a hystero-laparoscopy, as all the exact etiology which may be of the ovarian, tubal, uterine, peritoneal, endometriotic, cervical, causes can be known, and in addition, treatment for these causes can also be offered in the same sitting.

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*Keywords: diagnostic hystero-laparoscopy, infertility, ovarian, tubal, uterine, peritoneal, endometriotic, cervical causes, treated cases.*

***Synopsis:***

Investigation of female infertility is incomplete without a Hystero-laparoscopy, as all the exact aetiology which may be of the ovarian, tubal, uterine, peritoneal, endometriotic, cervical, causes can be known, and in addition, treatment for these causes can also be offered in the same sitting.

## I. Introduction

Infertility has always been one of the elusive symptom complex that perplexes the best gynecologists. The couple is said to be infertile if they fail to conceive after one year of unprotected and regular sexual intercourse.[1-2]

It is also known as subfertilty.60-80 million couples are subfertile all over the world .It is said to be primary if she fails to conceive at all and secondary if she fails to conceive after a child birth or undoubted miscarriage. It affects 10-15% of couples in the reproductive age group. Its overall prevalence has been stable during past 50yrs however a shift in etiology and patient age has occurred[1-4].

Due to increased awareness and eagerness to have a pregnancy, couples are seeking medical help early. Focus of infertility treatment has shifted from systematic correction of each identified factor to apply most efficient therapy[6].

Of the causes of infertility, female factors contribute 40-50%, male by 30- 40%, both partners-10% and unexplained -10% in the remainder. Among this female factors have pathology in either uterine, cervical, tubal, ovarian, peritoneal, endometrial tissue etc. The ability to see and manipulate the uterus, tubes, and ovaries during laparoscopy made it an essential part of infertility evaluation[2-6].

The main advantage of laparoscopy over laparotomy is, it decreases postoperative pain, shorter hospital stay and decreases mortality.

Laparoscopy is one of the most significant advances in the investigation of the infertile couple in the last six years.

It is an indispensable tool which can be considered as a definitive day care procedure for evaluation and treatment of infertility.

But hystero-laparoscopy has become the "third eye of gynaecologists in the diagnosis of infertility. Though both represent invasive procedures laparoscopy aid for studying the peritoneal, endometrial, peritubal and ovarian morphology whereas hysteroscopy gives exact picture of intrauterine pathology[7-8].

Chromopertubation at the laparoscopy also gives idea of tubal patency and also avoids false negatives obtained by HSG because of tubal spasm. While it is probably true to say that no infertility investigation is complete without endoscopic evaluation. With the introduction of this hysteroscopy and laparoscopy there is tremendous uplift as the mere diagnosis of the causes of infertility and offering management also at the same setting[7-8].

The current evidence indicates a 9% prevalence of infertility,56% of couples seeking medical care. Therefore approximate prevalence of female infertility is 5-6%, as female infertility accounts for 40-50% (of which ovulatory dysfunction 40%, tubal and pelvic pathology 40%, uterine and cervical factors 10%, unexplained 10%.

WHO estimates the overall prevalence of primary infertility is between 3.9 and 16.8%, affects 8-12% of couples worldwide, and 3-5% unknown conditions.[12]

Hence present study planned to evaluate role of hystero-laparoscopy in primary and secondary infertility to identify the causes in female genital tract leading to infertility and to develop plan of therapy.

## II. Methodology

*Study Design:* An observational study to evaluate the infertility cases with hystero-laparoscopy in women with primary and secondary infertility in tertiary care centre.

*Study Period:* JUNE 2018-MAY 2019

*Sample Size:*

$N = z^2PQ/L^2$

N=sample size Z=1.96 at 95% CI

P (prevalence) = 3.9% (The WHO estimates the overall prevalence of infertility in India to be between 3.9 and 16.8 per cent. To yield more sample size ,lower prevalence is considered for sample size calculation)[12]

Q=100-3.9=96.1%

L=5% (Precision)

$N = 3.94 \times 3.9 \times 96.1/5 \times 5$

N=57.56 Making it to near value sample size considered is 60.

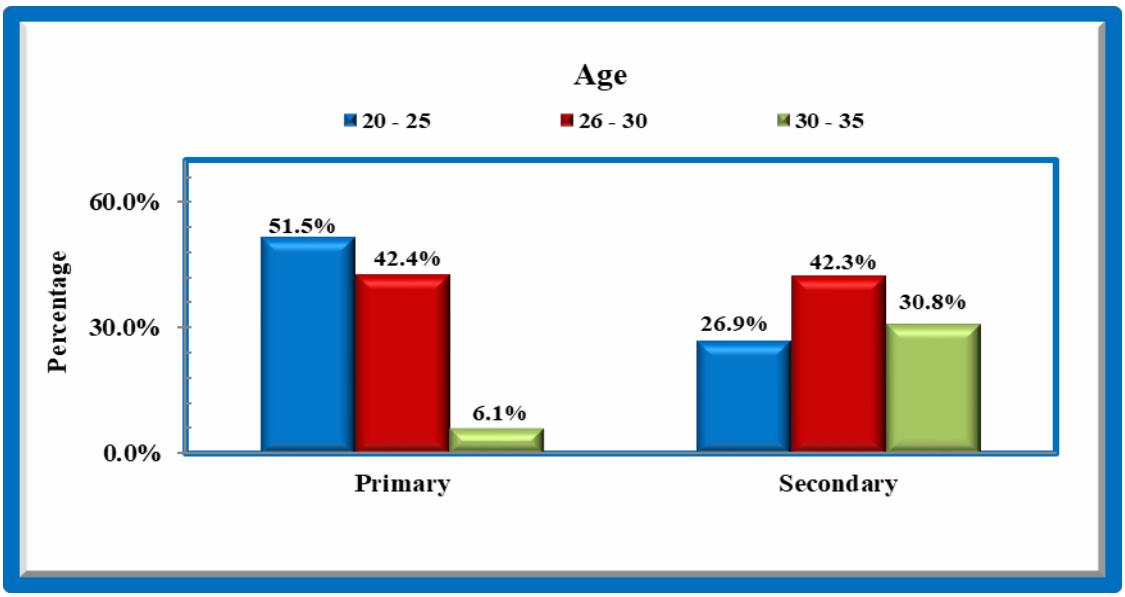
*Data Collection Technique and Tools:-*

Study is conducted in all patients in our hospital who attended infertility clinic for the treatment of infertility. All patients were evaluated clinically by diagnostic tests and are given treatment accordingly. By considering exclusion and inclusion criteria sample size was taken as 60.

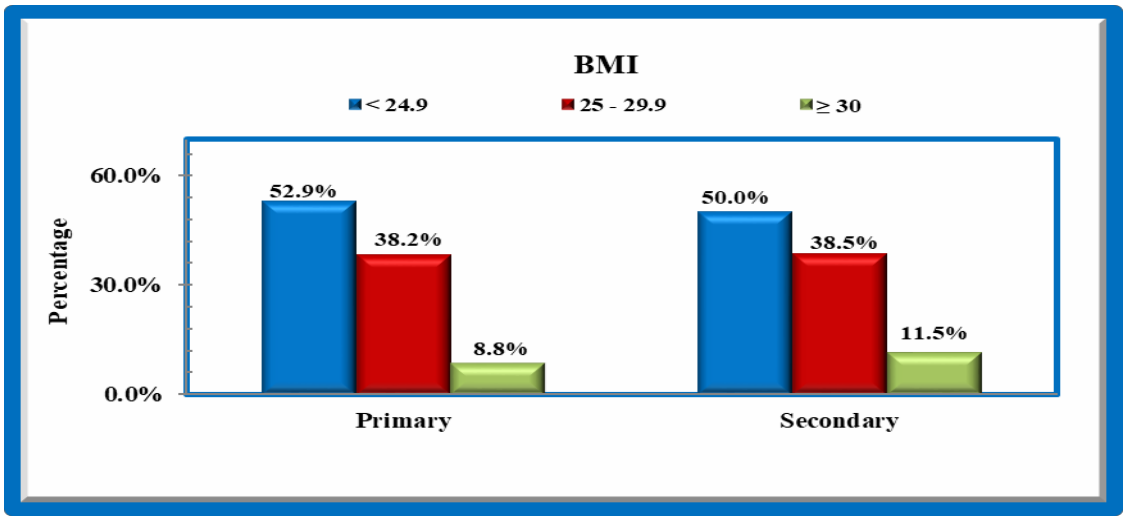
Written and informed consent were taken after explaining the nature and purpose of the study. Patients who were willing to participate and met the inclusion criteria were included. Data collection was done by asking the questionnaire. The relevant questionnaire has been prepared and piloted for its applicability, reliability, validity and consistency and then finalized. A detailed history was taken by preparing a questionnaire.

## III. Results

Most of 51.5% women of primary infertility are in the age group 20-25 years. 42.4% of primary and 42.3% of secondary fall in the age group of 26-30yrs .In primary, significantly less numbers are in the age group 30-33yrs.

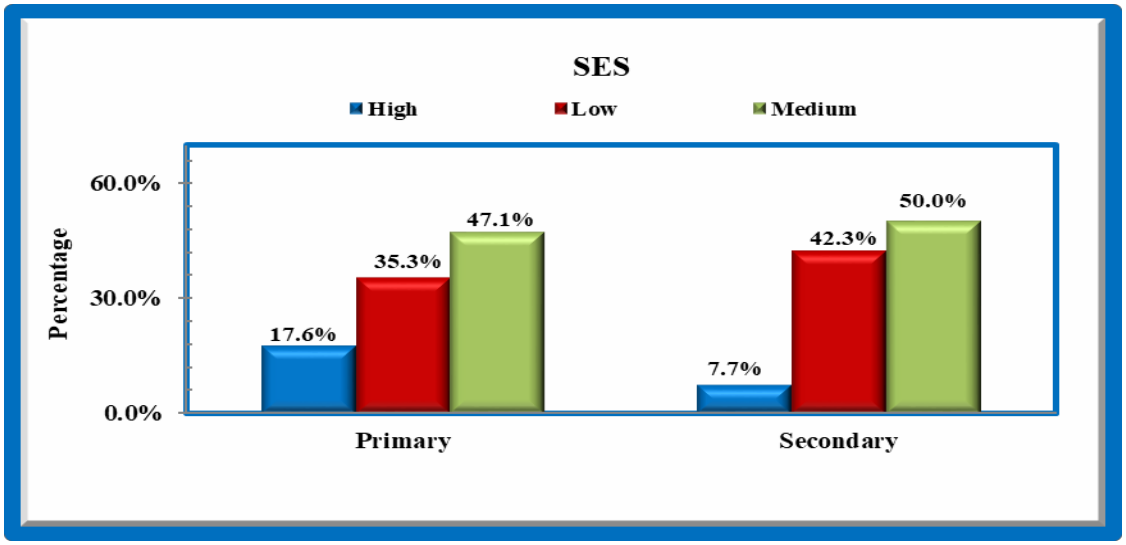



GRAPH 1



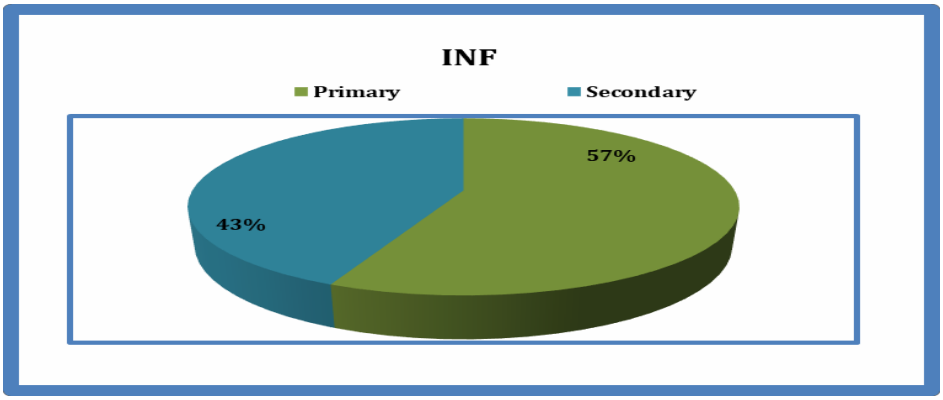

GRAPH 2

Majority are in grade 1 BMI, 52.9% of primary and 50% of secondary .38.2% of primary and 38.5% of secondary belongs to grade 11 BMI.



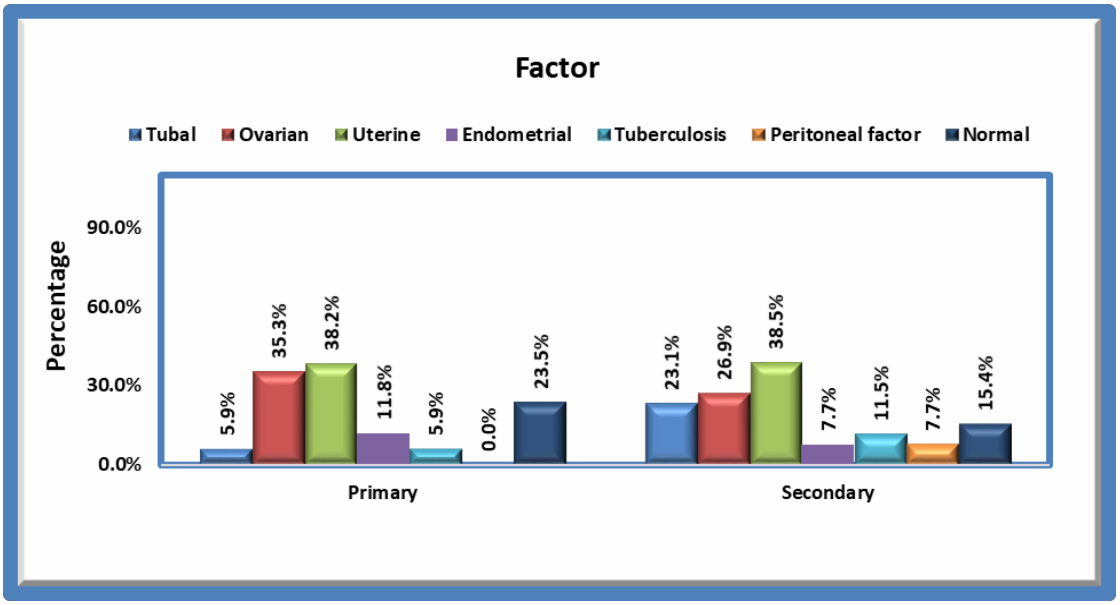

GRAPH 3

Majority belongs to middle socio economic status 47.1% of primary and 50% of secondary.



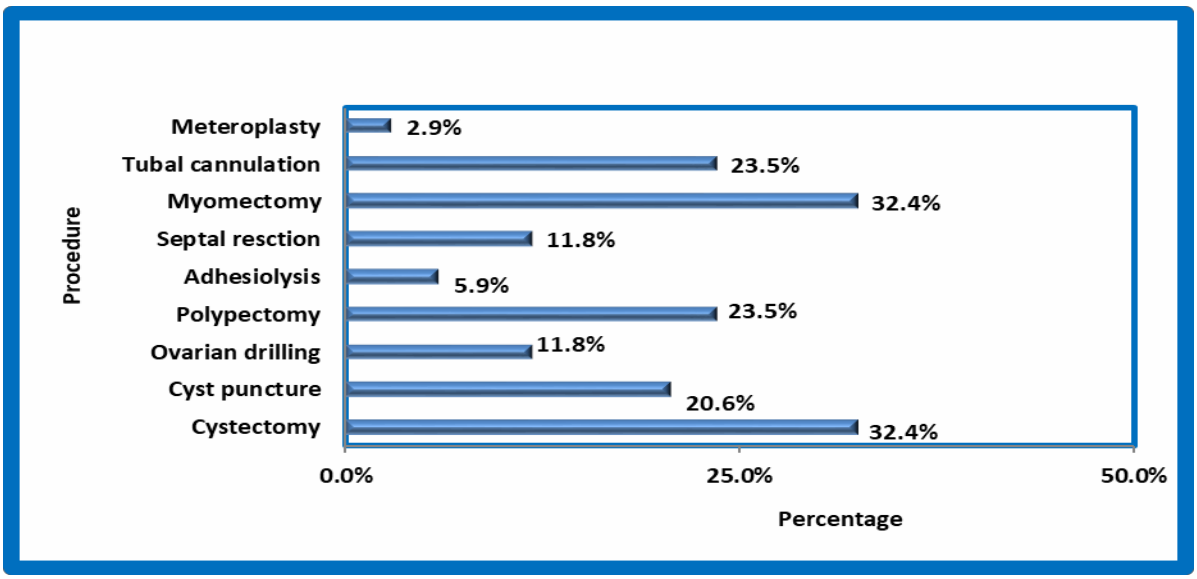

GRAPH 4

57% cases have primary infertility and 43% cases have secondary infertility.




GRAPH 5

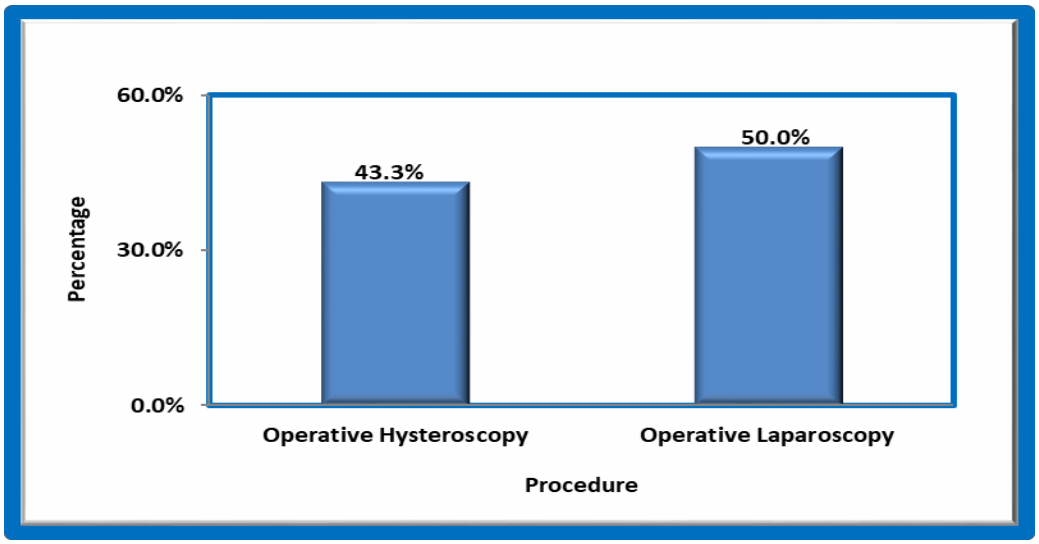
In 23.5% cases of primary and 15.4% cases of secondary infertility there is no obvious pathology. Tubal pathology is seen in 5.9% and 23.1% cases of primary and secondary, ovarian pathology is seen in 35.3% and 26.9% cases of primary and secondary. Uterine pathology contributes to 38.2% and 38.5% of primary and secondary infertility. Endometriosis 11.8% and 7.7% respectively, tuberculosis to about 5.9% and 11.5% of primary and secondary, peritoneal factors 7.7% in secondary infertility.




GRAPH 6

Distribution of cases according to procedure hysteroscopy and laparoscopy.

GRAPH 7




Operative Hysteroscopy is done in 43.3% cases which constitute 23.5% polypectomy, 5.9% adhesiolysis, 11.8% of septal resection, 32.4% myomectomy, 23.5% tubal cannulation.

Operative laparoscopy done in 50% cases which constitute 32.4% cystectomy, 11.8% ovarian drilling, and cyst puncture of 20.6%.

## IV. Discussion

Infertility is generally defined as one year of unprotected intercourse without conception. Approximately 85-90% of healthy couples conceive within one year. Infertility therefore affects approximately 10-15% of couples.

Laparoscopy is considered as the gold standard for diagnosing tubal and peritoneal disease. It is trans peritoneal endoscopic technique that provides direct visualization of pelvis and complete view of cul de sac, pelvic side walls and all the pelvic viscera. Hysteroscopy is a procedure that involves the insertion of an endoscope through the cervical canal into the uterine cavity and distension media to allow for visualization.

Hystero-laparoscopy is minimally invasive technique reaching new horizons in management of infertile patients. Direct visualization with optical magnification has an added advantage of diagnosing pathologies which cannot be picked up in ultrasound and other radiological tests.

The Study is conducted at Muslim maternity hospital who attended the infertility department from: JUNE 2018 - MAY 2019.

*Age:* In the current study majority of infertile women are in the age group of 20- 30yrs. Primary infertility majority are in 20-25yrs (51.5%) and secondary infertility majority are in 26-30yrs (42.3%). According to Gufareen et al (2010) 55% had primary in the age group of 20- 25yrs ,60% had secondary in 26-33yrs which is nearly similar to current study.

*Socioeconomic Status:* In the current study most of primary infertile women 47.1% belong to middle socio economic status, most of secondary infertile women belong to both low and middle socio economic status 42.3% and 50.0% respectively.Only 17.6% of primary infertile and 7.7% of secondary infertile women belong to high socio economic status. According to Nadia et al (2011) 65% of primary and 40% of secondary belong to low to middle socio economic status which is similar to current study.

*Type of Infertility:* In the current study primary infertility is 57% and secondary infertility is 43% which is almost similar to studies done by Erhong Zhang1et. al[12] (2014) 53.8% women had primary infertility and 46.2% had secondary infertility, jamshoro et al (2010) 64% in primary and 36% in secondary and Nadia et al(2011) 63% in primary 37% in secondary.

*Tubal Factors:* Hysteroscopy and laparoscopy are the two methods for evaluation and treatment of tubal pathology and are complementary to each other.

In the current study, hydrosalpinx is 2.9% in primary and 7.7% in secondary, which is similar to the studies done by Saima et al (2010), 4% in primary and 16% in secondary infertile women, whereas lead pipe and kinked tubes are 2.9% in primary and 7.7% in secondary which is similar to the studies done by jamshoro et al (2010) 3% in primary and 16.7% in secondary infertile women and many tubal blocks were demonstrated on sono hysterosalpingography, but the tubal patency was demonstrated on laparoscopic chromo perturbation by the release of tubal spasm and

minor blocks which were cleared by selective tubal cannulation and tubal patency was established, Also, edematous tubes are seen only in secondary infertility 7.7% and also there are absent tubes due to previous surgeries which is about 15.4%.

*Ovarian Factors:* In the current study, polycystic ovarian syndrome contribute to 24% and 20% in primary and secondary infertility which is similar when compared to the study of Saima et al (2010) 28% in primary and 12% in secondary.

*Uterine Factors:* Developmental uterine anomalies have long been associated with pregnancy loss and obstetric complications, but the ability to conceive is generally not affected. In the current study anomalous uterus is 4% in primary which is less when compared to study of Vidya et al (2011) where it is 14% in primary. Anomalous uterus in total contribute to 8.8% of infertility which is similar to Boricha et al (2011) 11% but less compared to Sajida et al[13] (2009) 13%. In my study most common of anomalous uterus is septate uterus. In modern operative hysteroscopic techniques, septal resection was done in my hospital and everywhere nowadays. Other than septate uterus, other uterine anomalies were arcuate uterus and didelphus uterus.Other causes such as ashermanns syndrome, fibroids and polyps are also found.

*Endometriosis:* In the current study, endometriosis contributed to 11.8% of infertility which is similar to Sarkar et al. (2008) and Javid etal10 (2009) 15% but less when compared with the studies done by Boricha et al (2011)and Sajida et al[13]. (2009) where they estimated as 22% and 20% respectively.

*Peritoneal Causes:* In the current study peritoneal factors contribute to 7.7% in secondary which is less compared to the studies done by Jamsharoo et al.estimated 22.2%, Nausheen et al. (2010) estimated 22.2%. Saima et al. (2010) estimated 16%.

*In Re-Evaluation:* of already treated cases, many factors were seen by diagnostic hystero-laparoscopy among which stenosed cervical os and abnormally directed cervical canal were found in a few cases, which were treated by dilatation of the os and uterine factors were septate uterus, endometrial polyps and the narrow uterine cavity, which were managed accordingly by septoplasty, polypectomy and metroplasty respectively. On laparoscopy, other causes were pelvic tuberculosis, pelvic disease and endometriosis. Tubal factors were tubal blocks, adhesions and inflamed tubes, which were managed accordingly.

*Management:* In the current study operative hysteroscopy was performed in 43.3%, operative laparoscopy was performed in 50%, which is similar to the studies done by Boudrak et al[4]. (2008) they performed 27.3% and 70% of operative hysteroscopy and laparoscopy respectively, also tubal surgeries were done in 23.5% of cases, ovarian drilling in 11.8%, excision of cyst in 32.4%, cyst puncture in 20.6%, polypectomy in 23.5%, adhesiolysis in 5.9%, septal resection in 11.8%, myomectomy in 32.8%. Boudhraak et al[4] .(2008) studies shows that adhesiolysis (27.2%), excision of cyst (17.2%), ovarian drilling (17.8%) and tubal surgeries (37%) which is similar to current study except for tubal surgeries. Boricha et al (2011) studies shows that adhesiolysis in 13.63%, cystectomy in 13.63%, cyst puncture in 22.72%, ovarian drilling in 40%. Cases that were diagnosed to have tubal pathology due to Kochs, PID or tubal blocks secondary to extensive endometriosis were directly advised for ART procedure.

## V. Conclusion

In the investigation of cases of infertility, normal semen analysis of husband, routine traditional investigation of tubal patency, and endometrial biopsy, ovulation study, cervical factor study, are not the end points. The investigation is incomplete without an evaluation of the exact cause of infertility.

The traditional tests of tubal patency may be false negative due to tubal spasm, which were overcome in chromopertubation test in laparoscopy, which not only gives additional information about the exact site of block and the pathology behind, but also serves the purpose of treatment by doing adhesiolysis.

Laparoscopy also gives the exact picture of the morphology of the ovaries and the periovarian adhesions, at the same time has a role of treatment in the form of multiple drillings of the polycystic ovaries, endometriotic spots cauterization, adhesiolysis and evidence of ovulation can be confirmed by the presence of corpus luteum.

Laparoscopy also gives the picture of the abnormalities of uterus, about the peritoneum, and about endometriosis, which can be treated in the same sitting by electrocautery.

Hysteroscopy gives a good picture of the intracervical and intrauterine pathology and in addition to this diagnostic role, it has a therapeutic role to perform in releasing intrauterine adhesions, releasing cornual blocks by chromopertubation, tubal cannulation, and excision of endometrial polyps, fibroids, septum and an endometrial biopsy can be taken at the same sitting for hormonal assay.

The incidence of various pathological conditions are 23.5% cases of primary and 15.4% cases of secondary infertility, there is no obvious pathology. Tubal pathology is seen in 5.9% and 23.1% cases of primary and secondary, ovarian pathology is seen in 35.3% and 26.9% cases of primary and secondary. Uterine pathology contributes to 38.2% and 38.5% of primary and secondary. Endometriosis 11.8% and 7.7% respectively, tuberculosis to about 5.9% and 11.5% of

primary and secondary, peritoneal factors 7.7% in secondary infertility.

The etiology found in reevaluated cases were stenosed cervical os, abnormally directed cervical canal, septate uterus, endometrial polyps, narrow uterine cavity, pelvic tuberculosis, pelvic disease, endometriosis, tubal blocks, adhesions and inflamed tubes. Operative procedures were carried out in the same sitting to get optimal outcome.

To conclude an investigation of female infertility is incomplete without a Hystero-laparoscopy, as all the exact etiology which may be of the ovarian, tubal, uterine, peritoneal, endometriotic, cervical, causes can be known, and in addition treatment for these causes can also be offered in the same sitting.

*Author Contributions*

*Funding* - None

*Conflict of interest*

The authors declare that they have no conflict of interest.

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# Carboprost Versus Oxytocin in Active Management of Third Stage of Labour: Comparative Study

By Thakur NK, Shrestha B, Yadav BK, Aryal A & Shah C

*Abstract-* *Background:* Worldwide every one minute one woman dies from pregnancy or child birth related complications. This study attempt to compare efficacy of Carboprost versus Oxytocin for active management of third stage of labour.

*Methodology:* Three hundred obstetric cases anticipated for spontaneous vaginal delivery were randomly divided into two groups. Out of which 150 received Intramuscular oxytocin 10 units and 150 cases received Intramuscular Carboprost 125 µg after the delivery of the baby.

The main outcome measured with respect to outcome of third stage of labor were: duration, blood loss by volume, difference in hemoglobin, need for additional oxytocics and side effects.

*Keywords:* *oxytocin, carboprost and third stage of labour.*

*GJMR-E Classification:* *LCC: RG133.5*


*Strictly as per the compliance and regulations of:*

# Carboprost Versus Oxytocin in Active Management of Third Stage of Labour: Comparative Study

Thakur NK [α], Shrestha B [σ], Yadav BK [ρ], Aryal A [ω] & Shah C [¥]

*Abstract- Background:* Worldwide every one minute one woman dies from pregnancy or child birth related complications. This study attempt to compare efficacy of Carboprost versus Oxytocin for active management of third stage of labour.

*Methodology:* Three hundred obstetric cases anticipated for spontaneous vaginal delivery were randomly divided into two groups. Out of which 150 received Intramuscular oxytocin 10 units and 150 cases received Intramuscular Carboprost 125 µg after the delivery of the baby.

The main outcome measured with respect to outcome of third stage of labor were: duration, blood loss by volume, difference in hemoglobin, need for additional oxytocics and side effects.

*Results:* Carboprost group had shown significant reduction in duration of third stage of labour ($p<0.001$), blood loss ($p<0.001$) and reduction in hemoglobin was also less when compared to oxytocin. Most of oxytocin group side effects like nausea and vomiting (6%) while diarrhea (12%) was common among carboprost group.

*Conclusion:* The study concludes that intramuscular carboprost 125 µg is more effective in active management of third stage of labour. However, a large metacentric randomized controlled trial is required to draw conclusion.

*Keywords: oxytocin, carboprost and third stage of labour.*

## I. Background

Third stage of labour is the period from the delivery of the baby until the delivery of the placenta(1). Active management of third stage of labour involves; routine administration of a prophylactic uterotonic drug just before, with, or immediately after, the birth of the baby; early cord clamping and controlled cord traction to deliver the placenta(2). According to WHO the most common complication of third stage of labour is Postpartum hemorrhage (PPH) which is defined as a blood loss of at least 500ml after vaginal delivery and 1000ml after cesarean section and/or necessity of postpartum blood transfusion within 24hours of delivery(3,4).

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Drugs conventionally used for prophylaxis against PPH includes oxytocin, methylergotmetrin, carboprost and syntometrin(5). Among them Oxytocin acts through receptor and voltage mediated calcium channels to initiate myometrial contractions. It is on the World Health Organization's List of Essential Medicines, the most effective and safe medicines needed in a health system (6). In other hand Carboprost It shortens induction to delivery interval. Carboprost being a prostaglandin promotes myometrium contraction irrespective of the duration of gestation, whereas oxytocin acts predominantly on the uterus at term or in labour.

The present study is an attempt to evaluate the scope of using carboprost tromethamine 125 µg which is half the therapeutic dose for PPH and to evaluate its efficacy in terms of amount of blood loss, duration of third stage, side effects in comparison with oxytocin 10 units in active management of third stage of labor.

## II. Methodology

This study was a hospital based comparative study, conducted at National Medical College and Teaching

Hospital, Birgunj, Nepal which is a tertiary level hospital. The study period was twelve months from 16th July 2018 to 15th June, 2019. Ethical clearance was taken from institutional Review board (IRB) of National Medical College. Convenient Sampling method was used for sampling.

This study includes 300 women with singleton pregnancy with cephalic presentation in labor at term (3742 weeks of gestation). Excluding the women who underwent caesarean section, hypersensitivity to drugs, underlying comorbidity like respiratory diseases (asthma), cardiac disease, renal, liver disorder, epilepsy, psychiatry disorder, preeclampsia and eclampsia, severe anemia, multiple pregnancy, Polyhydramnios/ Oligohydramnios, Past History of PPH, Grand Multipara. These women are recruited in two group after taking informed consent with standardized form after admission in labor ward. Women who were likely to have vaginal delivery were offered entry to the trial with computer generated random numbers, to either control group to receive intramuscular oxytocin 10 units (group

A) or to the study group to receive intramuscular carboprost 125μg(group B) just after the delivery of the baby. A sterile tub is immediately placed at the vulva after delivery of fetus and blood volume was measured by measuring jar. Differences in the weight of drapes and sanitary pads was also estimated by weighing it before and after delivery and converting it into grams per milliliter. It is done by dividing difference in weight of drapes along with sanitary pads with density of blood (i.e 1gm/ml)(7).Estimated total blood loss was calculated by adding the 2 values. If intravenous oxytocin infusion was used during the second stage of labour, it was stopped immediately after delivery. The drape was removed 10 minutes after the episiotomy or laceration repair unless the patient continued to have significant PPH. Patients were further monitored for 1 hours postpartum for PPH and side effects of drugs.

## III. Data Analysis and Statistical Analysis

The data collected were entered daily in the master chart. Pre-test of data was done after completing 10 cases and necessary adjustment were made after discussing with the guide. Regular meetings with guide were held to clear up any confusion. Analysis of the data was done. Data were summarized as mean and proportion with the help of the statistician and the final analysis was done using independent t test to test the difference between the 2 different groups. Paired data were analyzed using paired t test. Chi-square test was used to analyze the difference in proportions, and p values were reported accordingly. These findings were then presented in the form of tables, graphs and diagrams. P value was considered significant if $p < 0.05$. SPSS version 21 was the software used for calculation and tabulation of data.

## IV. Result

The study population included 300 obstetric cases fulfilling inclusion and exclusion criteria. Out of which 150 received Intramuscular oxytocin 10 units and 150 cases received Intramuscular Carboprost 125μg just after the delivery. The age group ranged between 15-42 years. The mean age group of oxytocin group was 22.85±3.34 years and that of carboprost group was 25.29±4.07 years.101 and 131 women belongs to age group 21-35 years among oxytocin and carboprost groups respectively.

Duration of third stage of labour in oxytocin group ranges from 4-12 minutes and mean duration was 5.57±1.20454. In Carboprost group, the duration ranges from 4-11 minutes with mean duration of 4.85±0.84 .The difference in mean duration of third stage between two groups was 0.72. Intergroup comparison of both study groups showed p value of <0.001 which is statistically significant.

There was reduction of hemoglobin in both the groups. In oxytocin group difference in hemoglobin was 1.49 gm/dl while in carboprost group was 0.78gm/dl.

*Comparison of Blood Loss in Study Groups*

| Blood loss range(ml) | Oxytocin n(%) | Carboprost n(%) |
|---|---|---|
| <100 | 0(0.00%) | 41(27.33%) |
| 101-150 | 0(0.00%) | 31(20.66%) |
| 151-200 | 29(19.33%) | 53(35.33%) |
| 201-250 | 37(24.66%) | 18(12%) |
| 251-300 | 49(32.66%) | 2(1.33%) |
| 301-350 | 31(20.66%) | 2(1.33%) |
| 351-400 | 2(1.33%) | 0(0.00%) |
| 401-500 | 0(0.00%) | 1(0.66%) |
| >500 | 2(1.33%) | 2(1.33%) |

The above table shows distribution of both the groups according to amount of blood loss. The postpartum blood loss was less in carboprost group compared to oxytocin group which was statistically significant (p value<0.001) and 2 cases went into PPH in Both groups.

*Comparison of Estimated Total Blood Loss*

| Groups | Total Blood Loss(ml) | |
|---|---|---|
| Oxytocin | 269±61.83 | P<0.001 |
| Carboprost | 156±80.01 | |

The above table shows comparison of blood loss between two groups. The blood loss in Oxytocin group was 269±61.83 compared to carboprost group which was 156±80.01 with p value of 0. 001. Intergroup comparison showed that the mean difference in estimated total blood loss between study groups was 113 with p value of 0.001 which was statistically significant.

In oxytocin group 26 0ut of 150 i.e. 17.3% required additional uterotonics whereas in carboprost group 9 out of 150 i.e. 6.0% required additional uterotonics. The difference in usage of additional uterotonics was statistically significant (p=0.002).

Women in oxytocin group had side effects like nausea and vomiting (6%), shivering (3.33%) and retained placenta (0.66%) while carboprost group had side effects like nausea and vomiting (7.3%), diarrhea (12%) and retained placenta (1.33%).

## V. Discussion

This study was conducted in department of obstetrics and gynecology, at National medical college and teaching hospital to evaluate the two uterotonics for management of third stage of labor. 300 women were selected who fulfilled the selection criteria and they were divided in group A and group B 150 of each by computer generated random numbers. In this study we evaluated the efficacy of oxytocin 10 units ( group A) with Carboprost 125μg (group B) in the third stage of labour and also recorded duration and blood loss in third stage of labour along with side effects and need for additional uterotonics.

Postpartum hemorrhage has been considered one of the most dreadful cause of maternal mortality worldwide with uterine atony being most common cause (70-90%). Active management of third stage of labour and prophylactic use of oxytocics after the delivery of baby has reduced its incidence by 40% (8,9). Main aim is to prevent PPH.

While it is clear that the use of prophylactic uterotonics will substantially reduce PPH , the most cost effective and ideal uterotonics has not been found, although intramuscular oxytocin is recommended by WHO .Methyl ergometrine is a conventional oxytocics used extensively but with hypertension as side effect. Intramuscular oxytocin has been found effective in preventing PPH even when used alone with fewer side effects. Oxytocin is probably the most commonly used oxytocic but is not the most potent drug and additional dosage or additional drugs may be needed at times with more blood loss compared to other oxytocics(10).

Carboprost is a strong uterotonic agent with a physiological role in human parturition both in the delivery and control of PPH. The discovery of prostaglandins and its analogues as an oxytocics has improved prospect in modern era in control of PPH due to its significant influence on uterine tone resulting in less blood loss that outweighs its cost. The side effects are also subtle(11,12).

## VI. Conclusion

In our conclusion, our study favors that intramuscular carboprost 125μg is a better and cost-effective option compared to intramuscular oxytocin 10U and more effective in AMTSL. Carboprost minimized blood loss significantly with less need for additional uterotonics and effectively shortened the duration of third stage of labor compared to oxytocin. The result of our study demonstrated that prophylactic dose of carboprost is well tolerated and may be considered in all woman at risk of PPH. However, a large multicentric randomized controlled trial is required to draw conclusion.

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# Global Journals Guidelines Handbook 2025

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## Fellows/Associates of Medical Research Council

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The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

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g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

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Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

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***5. Use the internet for help:*** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.

***6. Bookmarks are useful:*** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

***7. Revise what you wrote:*** When you write anything, always read it, summarize it, and then finalize it.

***8. Make every effort:*** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

***9. Produce good diagrams of your own:*** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

***10. Use proper verb tense:*** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

***11. Pick a good study spot:*** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

***12. Know what you know:*** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

***13. Use good grammar:*** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

***14. Arrangement of information:*** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

***15. Never start at the last minute:*** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

***16. Multitasking in research is not good:*** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

***17. Never copy others' work:*** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

***18. Go to seminars:*** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

***19. Refresh your mind after intervals:*** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

***20. Think technically:*** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

***21. Adding unnecessary information:*** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

***22. Report concluded results:*** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

***23. Upon conclusion:*** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## Informal Guidelines of Research Paper Writing

***Key points to remember:***

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

**Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

**The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

**General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

*Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

**Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

**Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

**Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

**Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

**Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

## The Administration Rules

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection*.

*Segment draft and final research paper:* You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

*Written material:* You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

## Criterion for Grading a Research Paper (Compilation) by Global Journals

**Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.**

| Topics | Grades | | |
|---|---|---|---|
| | **A-B** | **C-D** | **E-F** |
| ***Abstract*** | Clear and concise with appropriate content, Correct format. 200 words or below | Unclear summary and no specific data, Incorrect form Above 200 words | No specific data with ambiguous information<br>Above 250 words |
| ***Introduction*** | Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited | Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter | Out of place depth and content, hazy format |
| ***Methods and Procedures*** | Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads | Difficult to comprehend with embarrassed text, too much explanation but completed | Incorrect and unorganized structure with hazy meaning |
| ***Result*** | Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake | Complete and embarrassed text, difficult to comprehend | Irregular format with wrong facts and figures |
| ***Discussion*** | Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited | Wordy, unclear conclusion, spurious | Conclusion is not cited, unorganized, difficult to comprehend |
| ***References*** | Complete and correct format, well organized | Beside the point, Incomplete | Wrong format and structuring |

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