

POSTOPERATIVE MORBIDITY IN WOMEN FOLLOWING MAJOR GYNAECOLOGICAL SURGERY

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ABSTRACT

BACKGROUND

The complications following major gynaecological surgery are distressing and impose economic burden on the patients. Literature available sponsored by World Health Organization suggests that more than 234.2 (95%, CI 187.2-281.2) million major surgical procedures are undertaken every year worldwide. However, the outcome following surgery is a significant public health issue. In view of the high complication rates of major surgical procedures, surgical safety has now become a global public health concern. Surgical procedures have major physical, psychological and social impacts on patients and consume significant resources. Hence, there is a need to establish surveillance of surgical procedures and pre and postoperative practices that can influence the outcome. Standardised protocols are required for assessment and prompt management of the condition by knowing the incidence of each postoperative complication. This study was mainly undertaken to study the postoperative morbidity and their implications in a group of patients who had undergone major gynaecological surgeries.

MATERIALS AND METHODS

A prospective observational study was conducted in the Department of Obstetrics and Gynaecology of Andhra Medical College/King George Hospital, Visakhapatnam, from January 2015 to December 2015. A total of 100 women who had undergone major gynaecological surgery and satisfied the inclusion criteria were included as study samples. Postoperative follow up of patients was conducted till the patients were discharged from the hospital. Preoperative, intraoperative and postoperative details of the case were recorded in a structured pro forma for statistical analysis.

RESULTS

In this study, majority of the women who had undergone the major gynaecological surgery belonged to 41-50 years of age group. Spinal anaesthesia was used in more than half of the cases in this study. Fibroid uterus was the major indication for surgery followed by AUB refractory to medical management, primary infertility, ovarian cysts and AUB with second-degree uterovaginal prolapse. More than quarter of subjects in this study had undergone vaginal hysterectomy followed by total abdominal hysterectomy, total abdominal hysterectomy with salpingo-oophorectomy, diagnostic laparoscopy and vaginal hysterectomy with anterior colporrhaphy. The time of surgery was 61-120 minutes in 52.5% of the patients in this study. The blood loss was less than 100 mL in 67.5% of the study subjects. Postoperative morbidity was not present in 71.7% of the study subjects. The rate of blood transfusion was 10.0% and 6.7% had febrile morbidity, 3.3% had surgical site infection, 2.5% had urinary retention, 1.7% had bladder injury, UTI and vault haemorrhage and 0.8% had bowel injury and conversion of laparoscopy to open surgery.

CONCLUSION

This study had shown that most of the cases belonged to age group of more than 30 years and uterine pathology are common indications for gynaecological surgeries. The main postoperative morbidity included blood transfusion and febrile morbidity.

KEYWORDS

Laparoscopy E01.370.388.250.520, Hysterectomy E04.950.300.399, Haemorrhage C23.550.414.

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BACKGROUND

Hysterectomy is one of the most common major surgical procedures performed in gynaecology. The literature from

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the developed world is also suggesting that newer and lesser invasive treatment options for gynaecological disease are leading to fall in the trends for Total Abdominal Hysterectomy (TAH) with or without salpingo-oophorectomy. The keys to reduce the morbidity due to postoperative complications are suspicion, anticipation and early recognition and prompt appropriate intervention. Postoperative surgical morbidity is frequently caused by complications such as surgical site infection, haemorrhage, urinary tract infection, urinary retention, pulmonary complications, thromboembolic episodes, phlebitis, deep vein thrombosis and paralytic ileus. The presence of

comorbidities, including diabetes, hypertension, coronary artery disease, sleep apnoea, obesity, hypoventilation syndrome and osteoarthritis of the knees and hips alter the normal physiology. These alterations result in increased surgical risks of deep venous and pulmonary emboli, aspiration, wound infection and dehiscence, postoperative neuropathy, cardiac failure and misdiagnosed intra-abdominal catastrophe. These complications are not only distressing to the patients and care providers, but can also impose an economic burden on the patient. It is necessary to know the incidence of each of the postoperative complications, so as to standardise the protocol for assessment and prompt management of the condition.

Aim and Objectives

1. To study the postoperative morbidity in women undergoing major gynaecological elective surgeries.
2. To analyse the effect of postoperative morbidity in women undergoing major gynaecological surgery.

MATERIALS AND METHODS

A prospective observational study was conducted in the Department of Obstetrics and Gynaecology of Andhra Medical College/King George Hospital, Visakhapatnam, from January 2015 to December 2015. A total of 100 women who had undergone major gynaecological surgery and satisfied the inclusion criteria were included as study samples. Postoperative follow up of patients was conducted till the patients were discharged from the hospital. Preoperative, intraoperative and postoperative details of the case were recorded in a structured pro forma for statistical analysis. Febrile morbidity was defined as temperature of 38 degrees C more recorded on two occasions, at least six hours apart, more than 24 hours after surgical procedure or single temperature elevation of 39 degrees C.

Preoperative Preparation- Preanaesthetic evaluation and clearance was obtained from the anaesthesiologist before appointment for the surgery. A blood demand of two pints was confirmed before surgery. Part preparation was conducted by clipping the hair at the operation site. Scrub bath was given on the day of surgery. Prophylactic antibiotic was given half an hour prior to surgery as per the antibiotic policy. Thromboembolic prophylaxis was considered for the patients with prolonged surgery more than or equal to two hours, evidence of pelvic thrombophlebitis, patient in whom early ambulation was not possible and in those undergoing oncologic surgery.

Postoperative Care- Hydration and adequate analgesia was ensured. Continuation of antibiotics was individualised. In patients with febrile morbidity, sepsis screening test were sent to active search of focus of infection. Sepsis screening includes haematological and biochemical parameters, peripheral blood smear for toxic granules or malaria parasite, high vaginal swab, blood and urine for culture sensitivity. Therapeutic antibiotics continued until the culture reports are available or patient remains afebrile for more than 48 hours. The antibiotic regimen was as follows.

Inj. Cefotaxime 1g (single anti-microbial)	8 th hourly	3 doses	Laparoscopy
Inj. Cefotaxime 1g + Inj. Metronidazole 0.5 g	8 th hourly - 12 th hourly	3 doses	Open surgery and vaginal hysterectomy

Therapeutic Antibiotics- Single-dose antimicrobial is changed to multiple antimicrobial regime. The cephalosporin component cefotaxime is changed to ceftriaxone. In febrile morbidity/established infection, therapeutic antibiotics were started and continued till the culture and sensitivity pattern is received. Drugs were changed according to sensitivity pattern if required. Repeat cultures for antibiotic sensitivity from the source of infection were sent for examination after completion of antibiotic therapy. Postoperative follow up of patients was conducted till the patients were discharged from the hospital. Preoperative, intraoperative and postoperative details of the case were recorded in a structured pro forma for statistical analysis. Intraoperative factors like type of surgery, emergency or elective surgery, route of surgery, duration of surgery, intraoperative complications, choice of sutures used and prophylactic antibiotic use and blood transfusion was noted. Postoperative morbidity like febrile morbidity, surgical site infection, urinary retention, urinary tract infection, etc. was noted and follow up was included till the day of discharge from the hospital. All the details were collected in a predesigned pro forma. The data thus collected was entered in an excel sheet and analysed using Statistical Package for Social Services (SPSS version 21). The test of significance used was Chi-square test for categorical variables. A P value of less than 5% was considered as statistically significant. Student's t-test was used to estimate the significance of each parameter in relation to postoperative morbidity.

Inclusion Criteria

Age group 30 to 50 years.

Patient's undergone major elective gynaecological surgery during the period of the study.

Exclusion Criteria

Age group below 30 years and above 60 years.

Emergency surgeries.

Patients with systemic illnesses like diabetes, hypertension, tuberculosis epilepsy (comorbid conditions).

Those patients who are not willing to participate in the study.

RESULTS

In this study, about 42.5% of the study subjects belonged to 41-50 years age group followed by 31-40 years (26.7%), less than 30 years (25%) and 51-60 years (Table 1). About 58.3% of the women in this study had undergone surgery with spinal anaesthesia and 25.0% of the women undergoing gynaecological surgery received general anaesthesia. About 17.5% of the women in this study had fibroid uterus, 15.8% of the women had AUB refractory to medical management, 10.8% had primary infertility, 9.2% had ovarian cysts and 4.2% had AUB with second-degree

uterovaginal prolapse (Table 2). 28.3% of the women in this study had undergone vaginal hysterectomy, 11.7% of the women had undergone total abdominal hysterectomy, 10.8% had undergone total abdominal hysterectomy with salpingo-oophorectomy, 10% had undergone diagnostic laparoscopy and 9.2% had undergone vaginal hysterectomy with anterior colporrhaphy (Table 3). About 80.8% of the women in this study had undergone open surgery and 19.2% had undergone the laparoscopic surgery in this study. About 33.3% of the women in this study had undergone gynaecological surgery by transverse incision, 19.2% by abdominal portis incision, 2.5% midline incision and 0.8% had undergone surgery by vertical incision. About 44.2% of the women in this study had undergone gynaecological surgery either by vaginal route or laparoscopy. The surgery was completed between 61-120 minutes in 52.5% of the patients, less than 60 minutes in 40.8% of the patients and more than 120 minutes in 6.7% of the patients. The blood loss was less than 100 mL in 67.5% of the women who had undergone gynaecological surgery in this study, 100-200 mL in 21.7% of the study subjects and more than 200 mL in 10.8% of the study subjects. About 71.7% of the study subjects in this study reported no postoperative morbidity due to gynaecological surgery. The rate of blood transfusion was 10.0% and about 6.7% complained to have febrile morbidity, 3.3% had surgical site infection, 2.5% had urinary retention, 1.7% had bladder injury, UTI and vault haemorrhage (Table 4). Majority (14.2%) of the women with postoperative morbidity had complication on first day after surgery, 5% had complications intraoperatively, 4.2% had complications on day 2, 2.5% had on day 4, 1.7% had complications on day 5 and 0.8% on day 3 (Table 5). The hospital stay was 6-10 days in 59.2% of the women who had undergone gynaecological surgery, less than 5 days in 35.8% of the study subjects and more than 10 days in 5% of the study subjects. About 88.1% of the study subjects in this study with abdominal surgery, 90.6% who had undergone the vaginal and all of those who had undergone laparoscopic surgery needed no blood transfusion. The patients with abdominal surgery needed more number of blood transfusions compared to those who had undergone vaginal surgeries (Table 6). The duration of hospital stay was less than 5 days in 30.2% of the patients with vaginal hysterectomy, 25.6% of patients with diagnostic laparoscopy, 11.6% of the patients with bilateral tubal ligation and laparoscopic ovarian cystectomy. Among the patients who stayed in the hospital between 6-10 days, 29.6% of the patients had undergone vaginal hysterectomy, 21.1% had undergone vaginal hysterectomy with colporrhaphy and 16.9% had undergone total abdominal hysterectomy. About 33% of the patients who had undergone total abdominal hysterectomy, TAH with salpingo-oophorectomy and vaginal hysterectomy with bladder repair stayed for more than 10 days. Among the patients who had duration of surgery less than 60 minutes, diagnostic laparoscopy in 22.4%, TAH with salpingo-oophorectomy in 22.4%, TAH in 20.4%, bilateral tubal ligation in 10.2%, cystectomy, diagnostic

hysterolaparoscopy and laparoscopic ovarian cystectomy in 6.1% of the patients. In all the patients who had surgery for 61-120 minutes, 52.4% had undergone vaginal hysterectomy, 23.8% had undergone vaginal hysterectomy with colporrhaphy and 4.8% had undergone total abdominal hysterectomy. The duration of surgery was more than 120 minutes in patients who had undergone vaginal hysterectomy with colporrhaphy, vaginal hysterectomy, vaginal hysterectomy with bladder repair, laparoscopic ovarian cystectomy, myomectomy and TAH. Among the patients with blood loss less than 100 mL, 55.6% had surgery 61-120 minutes and 39.5% had surgery for less than 60 minutes. In the patients with the blood loss of 100-200 mL, 46.2% had surgery for 61-120 minutes and 38.5% had surgery for less than 60 minutes. In the patients with blood loss of more than 200 mL, 53.8% had surgery for less than 60 minutes and 46.2% had surgery for 61-120 minutes (Table 7). Among the patients who stayed for less than 5 days in the hospital, 90.7% had no complications and 4.7% had febrile morbidity. In the patients who stayed between 6-10 days, 67.6% had no complications, 16.9% had blood transfusion and 8.5% had febrile morbidity. The patients with hospital stay of more than 10 days, 50.0% reported no complications and one patient each had urinary retention, UTI and vault haemorrhage (Table 8).

Age Group	Frequency	Percentage
Less than 30 years	30	25
31-40 years	32	26.7
41-50 years	51	42.5
51-60 years	7	5.8
Total	120	100

Table 1. Distribution of the Study Subjects According to Age Group

Diagnosis	Frequency	Percentage
Adenomyosis	4	3.3
AUB refractory to medical management	19	15.8
AUB with complex hyperplasia	2	1.7
AUB with endometriosis	1	0.8
AUB with II UV prolapsed	5	4.2
AUB with cystocele	1	0.8
AUB with endometriosis	1	0.8
AUB with fibroid uterus	1	0.8
AUB with II UV prolapse with cystocele	1	0.8
Cervical fibroid	1	0.8
Chronic pelvic pain	1	0.8
Complex hyperplasia	1	0.8
Contraceptive management	6	5.0
Endometriosis	2	1.7
Fibroid uterus	21	17.5
Fibroid uterus with cystocele	1	0.8
First-degree UV prolapse with cystocele with rectocele	1	0.8
Second-degree UV prolapse	5	4.2
Second-degree UV prolapse with cystocele	6	5.0
Third-degree UV prolapse	1	0.8
Third-degree UV prolapse with cystocele	3	2.5

Third-degree UV prolapse with cystocele with enterocele	4	3.3
Third-degree UV prolapse with cystocele with rectocele	1	0.8
Third-degree UV prolapse with cystocele with rectocele with enterocele	1	0.8
Ovarian cysts	11	9.2
Primary amenorrhoea	2	1.7
Primary infertility	13	10.8
Secondary amenorrhoea	1	0.8
Secondary infertility with PCOS	1	0.8
Total	120	100

Table 2. Distribution of the Study Subjects According to Diagnosis

Surgery	Frequency	Percentage
Abdominal sling surgery	2	1.7
Bilateral tubal ligation	5	4.2
Cystectomy	5	4.2
Diagnostic hysterolaparoscopy	3	2.5
Diagnostic laparoscopy with cystectomy	1	0.8
Diagnostic laparoscopy with ovarian drilling	2	1.7
Diagnostic laparoscopy	12	10.0
Bilateral ovarian cystectomy	1	0.8
Exploratory laparotomy	1	0.8
Laparoscopic ovarian cystectomy	5	4.2
LAPSTER	1	0.8
Myomectomy	2	1.7
TAH	14	11.7
TAH with salpingo-oophorectomy	13	10.8
Vaginal hysterectomy	34	28.3
Vaginal hysterectomy with bladder repair	2	1.7
Vaginal hysterectomy with anterior colporrhaphy	11	9.2
Vaginal hysterectomy with anterior with posterior colporrhaphy	6	5.0
Total	120	100

Table 3. Distribution of the Study Subjects According to Surgery

Morbidity	Frequency	Percentage
Nil	88	73.3
Bladder injury	2	1.7
Blood transfusion	12	10.0
Febrile morbidity	8	6.7
SSI	4	3.3
Urinary retention	3	2.5
UTI	2	1.7
Vault haemorrhage	2	1.7

Table 4. Distribution of the Study Subjects According to Postoperative Morbidity

Time of Complication	Frequency	Percentage
Nil	86	71.7
Intraoperative	6	5.0
Postoperative day 1	17	14.2
Postoperative day 2	5	4.2
Postoperative day 3	1	0.8

Postoperative day 4	3	2.5
Postoperative day 5	2	1.7
Total	120	100

Table 5. Distribution of the Study Subjects According to Time of Complications

Blood Transfusion	Type of surgery		
	Abdominal Surgery n (%)	Vaginal Surgery n (%)	Laparoscopic Surgery n (%)
Nil	59 (88.1)	48 (90.6)	23 (100)
1	7 (10.4)	5 (9.4)	0
2	1 (1.5)	0	0
Total	67 (100)	53 (100)	23 (100)

Table 6. Distribution of the Study Subjects According to Blood Transfusion and Type of Surgery

Duration of Surgery	Blood loss		
	Less than 100 mL	100-200 mL	More than 200 mL
Less than 60 minutes	32 (39.5)	10 (38.5)	7 (53.8)
61-120 minutes	45 (55.6)	12 (46.2)	6 (46.2)
More than 120 minutes	4 (4.9)	4 (15.4)	0
Total	81 (100)	26 (100)	13 (100)

Table 7. Distribution of the Study Subjects According to Postoperative Morbidity and Amount of Blood Loss

Postoperative Morbidity	Duration of Hospital Stay		
	Less than 5 Days	6-10 Days	More than 10 Days
Nil	39 (90.7)	48 (67.6)	3 (50)
Blood transfusion	0	12 (16.9)	0
Febrile morbidity	2 (4.7)	6 (8.5)	0
SSI	1 (2.3)	2 (2.8)	1 (16.7)
Urinary retention	1 (2.3)	1 (1.4)	1 (16.7)
UTI	0	1 (1.4)	1 (16.7)
Vault haemorrhage	0	2 (2.8)	0

Table 8. Distribution of the Study Subjects According to Postoperative Morbidity and Duration of Hospital Stay

DISCUSSION

Majority of the women who had undergone the major gynaecological surgery belonged to 41-50 years of age group. The study had shown that the gynaecological morbidity was lesser in women of 30 years of age group. Diagnostic laparoscopy and tubal ligation were common in the age group of less than 30 years. Total abdominal hysterectomy, vaginal hysterectomy and diagnostic laparoscopy were common in patients aged between 31-40 years. Vaginal hysterectomy, vaginal hysterectomy with colporrhaphy and total abdominal hysterectomy with salpingo-oophorectomy were common in patients aged between 51-60 years. In a study of hysterectomies at Dinajpur, similar results were observed. About 46% of the hysterectomies belonged to 30-39 years of age group and 43% belonged to 40-49 years.¹ In a study of outcome of single dose prophylaxis of the antibiotics before surgery, the mean age of gynaecological patients was 38.01 years.² The mean age was 48.11 of the cases abdominal hysterectomy and 57.61 years of vaginal hysterectomy.³ The mean age of cases in patients of ovarian dermoid cysts was 29.0 years in

laparotomy cases and 30.9 years in laparoscopy cases.⁴ Sharma et al have also observed similar results in rural India.⁵ In a study of hysterectomies at Dinajpur, about 33% had DUB, 25% had fibroid uterus, 4% endometriosis, 18% had chronic cervicitis and 14% had pelvic inflammatory diseases.¹ In a study of abdominal hysterectomies, the main indication for the surgery was DUB followed by fibroid uterus, malignancies, pelvic inflammatory disease, endometriosis, molar pregnancy, uterovaginal prolapse, uterovaginal prolapse with fibroids, uterovaginal prolapse with DUB and DUB were the indications for the vaginal hysterectomy.⁶ DUB, fibroid uterus, endometriosis, chronic PID, adenomyosis, UV prolapsed, endometrial polyp and pelvic adhesions were the main indication for abdominal hysterectomy and UV prolapse, DUB, fibroid uterus, adenomyosis, pelvic adhesions and endometrial polyp were the indications for vaginal hysterectomy in a study by Tabassum et al.³ In a study of outcome of patients by single-dose prophylaxis, the mean duration of gynaecological surgery was 79.82 minutes in corroboration with the results of this study.² The mean duration of surgery of abdominal hysterectomy was 102.84 minutes and vaginal hysterectomy was 117.45 minutes in a study by Tabassum et al.³ The average operative time of dermoid cysts in laparotomy cases was 89.9 minutes and 102.0 minutes in laparoscopy cases similar to the results of this study.⁴ Wound infection complicated about 6.2% of the patients at Dinajpur, 3.44% of the patients had urinary tract infection, 1.72% had haematoma, 2.53% had deep vein thrombosis and 2.41% had secondary haemorrhage unlike morbidity in this study. The frequency of visceral damage including bladder were higher in this study compared to other study.¹ In an audit of hysterectomy, febrile morbidity was an important postoperative complication followed by intraoperative haemorrhage, anaemia, haematomas, injury to the urinary tract, injury to the gut, urinary retention and dyspareunia after abdominal and vaginal hysterectomies.⁶ In a study of surgeries of dermoid cysts of ovary, more than 90% of the laparoscopy and laparotomy cases had reported no postoperative morbidity. Infection, anaemia and ileus complicated 2% of the laparotomy cases and ileus complicated 1% of the cases of laparoscopy.⁴ Fever alone was present in 0.3% of the cases of major gynaecological surgery and combined wound infection and fever was present in 0.2% of the cases.⁷ In a study of postoperative infections, the rate of infection in gynaecological wards was 16.7% in contrary to the rates in this study.⁸ The rate of infection was 5% in cases of abdominal hysterectomy, 3% of vaginal hysterectomy cases and 0.8% of laparotomy cases. The rate of wound infection in cases of major gynaecological surgeries was 0.4%.⁷ In a study by Tabassum et al, about 9.09% of the patients who had undergone vaginal hysterectomy had urinary retention. The rate of UTI was 20.27% in cases with abdominal hysterectomy and 15.15% in patients with vaginal hysterectomy.³ In a study of rate of bladder and ureter injuries, the bladder injuries were reported in 2.4% of the cases of abdominal hysterectomy and 0.5% of the cases

with vaginal hysterectomy.⁹ The average hospital stay was 6-10 days in majority of cases with abdominal hysterectomy and less than 5 days in patients with vaginal hysterectomy in an audit of hysterectomies.⁶ The mean duration of hospital stay was 3.99 days in patients who had undergone gynaecological surgeries.² The duration of hospital stay was 5 days in 68.92% of the cases of abdominal hysterectomy and 93.94% in cases with vaginal hysterectomy. The mean duration of hospital stay was 5.73 days in abdominal hysterectomy cases and 4.48 days in cases with vaginal hysterectomy.³ About 88.1% of the study subjects in this study with abdominal surgery, 90.6% who had undergone the vaginal and all of those who had undergone laparoscopic surgery needed no blood transfusion. The patients with abdominal surgery needed more number of blood transfusions compared to those who had undergone vaginal surgeries. In contrary to these results, an audit of hysterectomies had reported minimum one pint of blood transfusion.⁶ Intraoperative blood transfusion was needed in 2.7% of the cases of abdominal hysterectomy and 24.24% of the cases of vaginal hysterectomy in a study by Tabassum et al.³

Limitations of Our Study- This study was a cross-sectional study, sample size was not calculated and randomisation was not followed in this study. This study was limited to one region of the state at one institute. This precludes the generalisation of results of this study.

CONCLUSION

The study had shown that most of the cases belonged to age group of more than 30 years and uterine pathology are common indications for gynaecological surgeries. The postoperative morbidity included blood transfusion and febrile morbidity. Most of the complications occurred on 1st postoperative day and the hospital stay of majority of the patients was between 6-10 days. The incidence of postoperative complications can be reduced by adhering to institutional protocols made to reduce the postoperative complications. Proper selection of the cases during preoperative period, adequate nutritional supplements and maintenance of hygiene are the factors, which need to be taken care of.

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