Postoperative Complications After Gynecological Surgry in Al Kut City

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ABSTRACT
Introduction: Post-operative problems are common. How the complications develop depends on the kind of operation, the preoperative treatment, and the patient's pre-existing comorbid condition. Problems following surgery can be divide into two categories: general and procedure-specific, as well as having emerged promptly, early, or late. Objectives: To determine the postoperative complications type after gynecological surgery in AL-Kut city. Methodology: A cross-sectional study had carried out in AL-Kut City, at the AL-Zahraa Teching Hospital and AL-Kut Hospital for Gynecology and Pediatrics. The seven-month data collection period started on October 16, 2023, and ended on May 16, 2024. Results: 400 female participants, ranging in age from 13 to 72, were be studied. The age distribution of the patients was 31.5 ±10, with the age group 24-34 accounting for the largest percentage of patients (41%) and the age group over 45 accounting for the lowest percentage (7.8%). In terms of marital status, the largest proportion of women (96.2%) were married, while the lowest (1.3%) were widowed. 51.2% of patients lived in urban areas, compared to 48.8% in rural ones. Patients with two to three children had the highest number of parities (34.8%), whereas 18% of patients did not have any parties. 31.8% of patients had an abortion, whereas 68.3% did not. Of which 44.3% had considered as normal BMI, 34.5% of people are overweight, 12% belong to the obese I, 4.3% to the obese II, and 4.5% are morbidly obese. Based on the patients' past medical history, hypertension was the most common ailment detected, accounting for 30.3% of cases (chronic HTN 13%, gestational HTN 17.3%), while diabetes patients made up 9.5% (chronic D.M. 6.5%, gestational D.M. 3%). Classification of Complications: 90.3% of complications occurred within 48 hours, whereas 51.3% developed intraoperative complications. Finally, 50.2% of patients experienced a late problem 48 hours later. Conclusion: The study discovered a link between complications after gynecologic surgery and pre-operative blood transfusion and hospital stay. Hemorrhage, anesthesia difficulties, and cardiac arrhythmia were significant, were the most common late complications among the patients. On the other hand, late complications had linked to surgical duration, number of parities, and age.

1. Introduction

Many people have complications after surgery; some transient, others serious, but all are important to patients. The kind of operation, the patient's pre-existing comorbid condition, and perioperative treatment all affect how likely postoperative problems are to occur. Problems following surgery can be general or specific to particular operations and can be classed according to their time of onset can be immediate, early, or late (Ortiz-Martínez et al., 2018). Complications are a possibility with any surgical treatment; complications, adverse events, and accidents are signs of hazardous care resulting from medical care. Any unfavorable and uncontrollable result of the surgery that has an impact on the patient and prevented if the related procedures had followed referred to as a complication (Sokol & Wilson, 2008), (Vincent, 2004). In addition, certain hazards connected to all surgical procedures. Both during surgery and thereafter, these problems are possible. Due to their proximity to the uterus, the ureters, bowels, arteries, and nerves are vulnerable to damage. If intraoperative difficulties are quickly detect while the surgery is being perform, they can be rapidly fixed. Since early detection and repair might minimize sequelae, a thorough understanding of pelvic anatomy is a requirement for the operating surgeon (Ortiz-Martínez et al., 2018). The intricacy of the surgery and the surgeon's experience both raise the risk, therefore accumulating surgical experience with the aid of preventative measures is helpful to lower the rate of complications (Tian et al., 2007). On the other hand, postoperative problems

may appear at any point after the procedure. These can range widely and include fever, upper respiratory infections, SSIs from surgery, urinary tract infections, urine retention, and abdominal distension. Both the patient and the surgeon may be at fault for these unintended problems. In the perioperative situation, ascites, inflamed bowel, deformed anatomy, prior surgery, endometriosis, carcinomas, and pelvic inflammatory disease can raise the risk of harm. Age, comorbid conditions, weight, level of compliance, personal hygiene, diet, and functional abilities of the patient may all show to be directly or indirectly causal. Similar to sterility in the operating room and among the team, aseptic conditions, and surgical errors can also cause difficulties (Bangal, Borawake, Shinde, & Gavhane, 2014). In low- and middle-income countries, 11.8% out of 100 surgical procedures are complicate by it, according to the World Health Organization (WHO) (WH, 2016). These infections are now among the most expensive causes of healthcare-associated illnesses (Naphade & Patole, 2017).

2. Methodology

The study includes 400 women who live in Al-Kut city and visited Al-Zahra teaching hospital, Al-Kut for gynecologic and pediatrics hospital, between 16th October 2023 and 16th May 2024.the researcher used the face- to-face interview method with patients because a large percentage of them are illiterate. The questionnaire form contained several parts, the most important of which were the patients demographics characteristics and BMI of the patients, past surgical history, past medical history, type of the recent surgery, surgical information, classifications of complications that developed after surgery. A sample size had calculated using a design effect of 2, 80% statistical power with a 2-sided test and $\alpha = 0.05$ to detect a decrease of 10%. Where 30% had assumed to be the percentage of persons estimated to have an irregular legal status at time 1 (this study) and 20% had assumed to be the percentage at time 2 (the next round of this study). (Pham, Johnston, Keegan, Wei, & Vinck, 2023).

3. Statistical Analysis

The collected data had coded, entered, presented, and analyzed by computer using the available data base software program statistical package of IBM SPSS-29 (IBM Statistical Packages for Social Sciences- version 29, Chicago, IL, USA). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values).

The significance of difference of different percentages (qualitative data) tested using Pearson Chi-square test (χ^2-test). Statistical significance considered whenever the P value was equal or less than 0.05.

4. Result and Discussion

Table (1): show socio-demographic characteristics of 400 female patients which attending to AL-Zahraa and AL-Kut hospital for doing gynecology surgery and they have complications during or after surgery. The table show the most frequent age group are (24-34 years) in 41% with mean 31.57=10 .the highest age is 72 year and the minimum age is 13 year. The majority of patients were married, which represent 96.2% , which residence in urban more than rural in 51.2% .number of parities of patients were (2-3) children in 139 percent and 68.3% weren't have abortion , which most of them in normal BMI 44.3%.

Table (1): Socio-demographic characteristics of patient that have gynecology surgery and developed complications.

Socio-Demographic characteristics		No	%
Age (years)	13---23years	89	22.3
	24---34	164	41.0
	35---45	116	29.0
	=>45years Mean=31.57 , Sd. =10.01153 Range=(72-13)	31	7.8
Marital status for patient	Married	385	96.2
	Divorced	10	2.5
	Widowed	5	1.3
residence of patient	Urban	205	51.2
	Rural	195	48.8
Number of parities of patient	None	72	18.0
	1	53	13.3
	2---3	139	34.8
	=>4	136	34.0
Number of abortions	One abortion	127	31.8
	No	273	68.3
BMI of patients	Underweight (<18.5)	2	0.5
	Normal (18.5-24.9)	177	44.3
	Overweight (25-29.9)	138	34.5
	Obese (30-34.9)	48	12.0
	Obese II (35-39.9)	17	4.3

	Morbid obese (=>40) Mean =2.89 , Sd.=1.071 Range=5	18	4.5

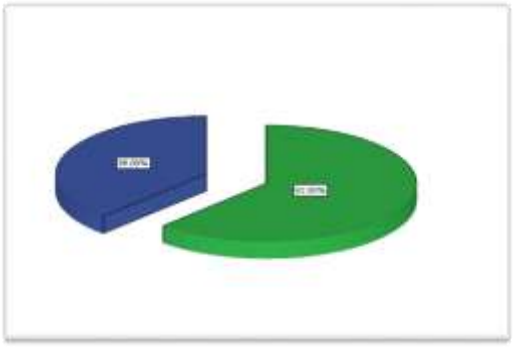

Figure (1): Past gynecologic surgical history. This figure show past gynecologic surgical history for patient, 62% have surgical history and 38% did not had PSH.

Table (2): past medical history of patients which attending to AL-Zahraa and AL-Kut hospital to doing surgery and have past medical history .the most frequent disease found is hypertension 121 patients (30.3%) that divided into two categories (chronic hypertension was 52, 13%),and (gestational hypertension was 69 , 17.3%),while patient that didn't have any type of HTN 279 patients ,69.8%). The second frequent disease was diabetes mellitus, which (39, 9.5%) female have D.M that divided into (chronic D.M 26 patients, 6.5%) and (gestational D.M 12 female,3%),while 362 patients didn't have any type of D.M. Other disease hypothyroidism that (12 , 3%)patients suffers from it ,while(2 ,0.5%) patients only suffers from epilepsy.34 patients (8.5%) suffers from asthma ,while (30 patients 7.6%) suffers from multiple co-morbidities that classify into (heart disease 17 patients ,4.3%)(cancer 1 patients 0.3%)(kidney disease 2 patients 0.5%)(thrombosis 10 patients 2.5%).

Table (2): past medical history of patients

Past Medical history		**No**	**%**
Hypertension	Chronic Hypertension	52	13.0
	Gestational Hypertension	69	17.3
	None	279	69.8
Diabetes mellitus	Chronic DM	26	6.5
	Gestational DM	12	3.0
	No DM	362	90.5
Hypothyroidisms		12	3.0

Epilepsy		2	0.5
Asthma		34	8.5
Co-morbidities	Heart disease	17	4.3
	Cancer	1	0.3
	Kidney diseases	2	0.5
	Thrombosis	10	2.5
	None	370	92.5

Table (3): the recent surgical information include:

Firstly duration of surgery that classify into:

*<1 hour were 261 patients 65.3%.

*1-2 hours were count 98 patients 24.5%.

*2-3 hours were 41 patient 10.3%.

Secondly, pre-operative duration of hospital stay classify into:

*1-4 days were 29 patients 7.2%.

*5-10 days were 19 patient 4.8%

Thirdly post-operative duration of stay in central care unit

*1-4 days 28 patients 7%.

*5-10 days 6 patients 1.5%

Additionally the pre-operative blood transfusion were 113 patient (28.2%) positively blood transmission and 287(71.8%) patients did not received blood.

Table (3): the recent surgical information

Surgical information		**No**	**%**
Duration of surgery	<1 hour	261	65.3
	1---2	98	24.5
	2---3	41	10.3
Preoperative duration of hospital stay (days)	None	352	88.0
	1---4	29	7.2
	5---10	19	4.8
Postoperative duration of CCU stay (days)	None	366	91.5
	1---4	28	7.0
	5---10	6	1.5
Preoperative blood transfusion	Yes	113	28.2
	No	287	71.8

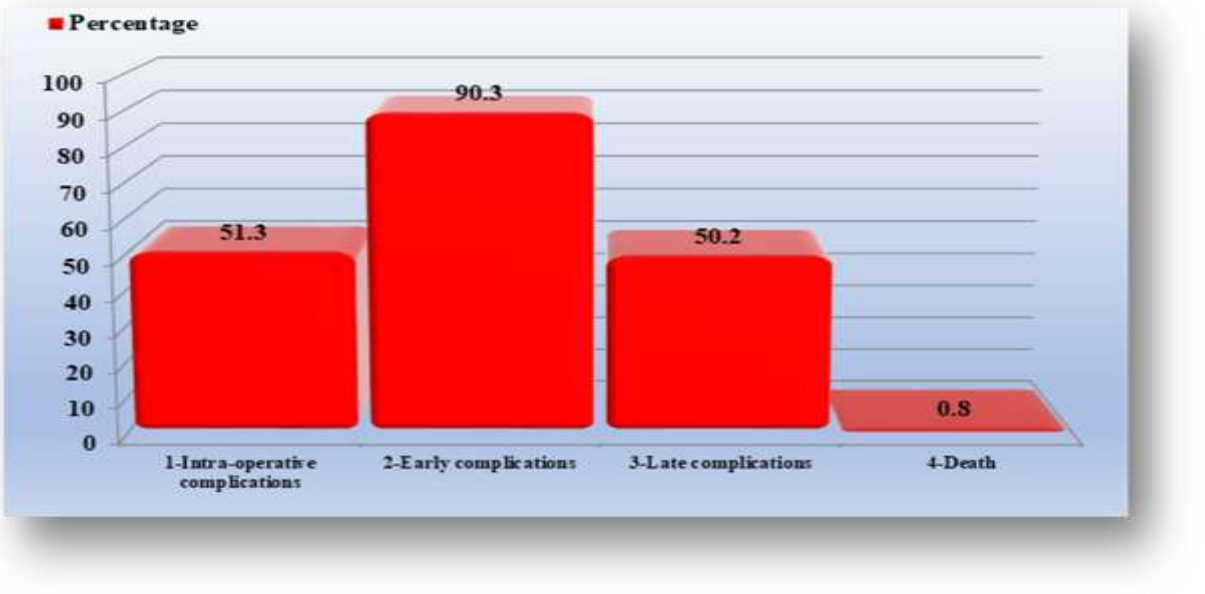

Figure (2): classification of the gynecological surgery complications.

This figure demonstrate the categories of complications (intra-operation complications, early post-operative complications, late post-operative complications, and death).

Table (4): association of surgical information (duration of surgery, Preoperative duration of hospital stay (days), Postoperative duration of CCU stay (days), Preoperative blood transfusion) with intra-operative complications.

Surgical information		**Intra-operative complications**			
		Yes		No	
		No	%	No	%
Duration of surgery	<1 hour	133	61.3	128	69.9
	1--- 2	55	25.3	43	23.5
	2--- 3	29	13.4	12	6.5
	P value 0.063				
Preoperative duration of hospital stay (days)	None	188	86.6	164	89.6
	1---4	17	7.8	12	6.6
	5---10	12	5.6	7	3.8
	P value 0.797				
Postoperative duration of CCU stay (days)	None	188	86.6	178	97.3
	1---4	24	11.1	4	2.2
	5---10	5	2.3	1	0.5
	P value 0.002*				
Preoperative blood transfusion	Yes	81	37.3	32	17.5
	No	136	62.7	151	82.5
	P value 0.0001*				

Table(5): association of demographic characteristics (age , marital status ,residence of patient, number of parities , number of abortion , BMI) with Late complications after 48 hours.

Socio-demographic characteristics		**Late complications after 48 hours**			
		Yes		No	
		No	%	No	%
Age (years)	13---23years	31	15.4	58	29.1
	24---34	83	41.3	81	40.7
	35---45	60	29.9	56	28.1
	=>45years	27	13.4	4	2.0

	P value	0.0001*			
Marital status for patient	Married	195	97.0	190	95.5
	Divorced	3	1.5	7	3.5
	Widowed	3	1.5	2	1.0
	P value	0.396			
Residence of patient	Urban	100	49.8	105	52.8
	Rural	101	50.2	94	47.2
	P value	0.547			
Number of parities of patient	None	25	12.4	47	23.6
	1	24	11.9	29	14.6
	2---3	75	37.3	64	32.2
	=>4	77	38.3	59	29.6
	P value	0.015*			
Number of abortions	Yes	67	33.3	60	30.2
	No	134	66.7	139	69.8
	P value	0.494			
BMI of patients	Underweight	-	-	2	1.0
	Normal	82	40.8	95	47.7
	Overweight	78	38.8	60	30.2
	Obese	23	11.4	25	12.6
	Obese II	9	4.5	8	4.0
	Morbid obese	9	4.5	9	4.5
	P value	0.365			

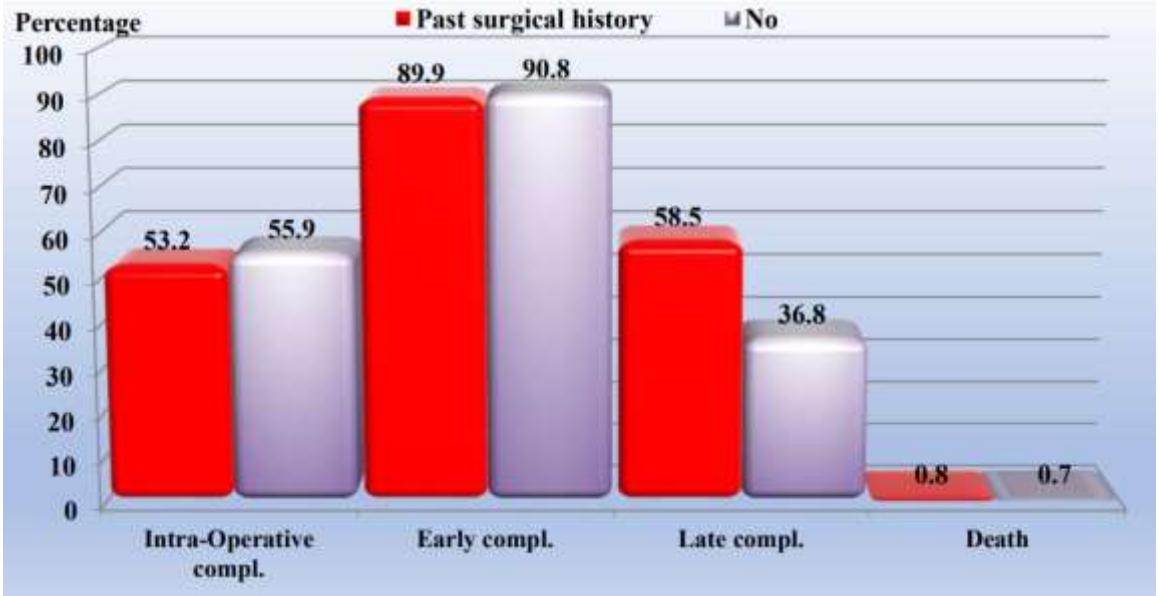

Figure (3): past surgical history and type of complications.

This figure show the association between type of complications (intra, early, late complications and death) and past gynecologic surgical among cases.

5.Discussion:Intraoperative complications: the length of stay following surgery in the central care unit where found significant difference level in intra-operative complications at P value 0.002.(24 cases 11.1% of female were stay in CCU for 1-4 days and 5 cases2.3% of female stay for 5-10 days in CCU. In comparison with Zand study which conduct to 9.7% of patients in this study who underwent gynecologic laparoscopic surgery spent more than two days in the hospital after surgery. Those differences between the two studies may due to different in the care in hospitals that causes discharge patients earlier and reduces the hospital stay (Zand et al., 2012).

Furthermore, preoperative blood transfusion had been found highly significant difference level in intra-operative at P value 0.0001.

Where 81, 37.3% patients who receive blood before the surgery due to medical history with anemia which leading to sever bleeding during surgery. When compared with (Ramtohul et al., 2022) study who found in the total, 71 patients received a BT, a prevalence of 4.6%, he verified that the hospitals under investigation had a greater incidence of BT.

Early complications: pelvic hematoma occurrence may be due intra-operative hemorrhage or not fully discharge the blood from abdomen cavity. UTI have significant differences between patients at p value 0.04 in patients with PSH that occurrence due to

folly-catheter which cause UTI that transformed to chronic infection and they have resistance for antibiotics. Finally, there is significant differences in DIC and renal failure in patients without PSH at p value 0.026 that because family history or medical history for these patients. This result agree with Ko and his colleagues. He discovered that a history of abdominopelvic surgery linked to a longer hospital stay. Additionally, "prior surgeries likely associated with adhesive disease" linked to higher estimated blood loss, longer hospital stays, and higher readmission rates during a 30-day period (Ko et al., 2021).

Late complications: reveal a significantly significant variation in the number of parties, age group, surgical time, and past surgical history. Regarding to age group related to late problems in this study. The age range of 24 to 34 years old was the highest for problems to arise. There were 83, 41.3% of instances with extremely significant patient differences at p value (0.0001). 348, or 96.4%,

of them were married. The findings of our investigation are nearly identical in (Erekson, Yip, Ciarleglio, & Fried, 2011). In late complications, the number of parities was significant at p value (0.015). The number of abortions and BMI shows non-significant differences in the types of complications.

Because of the fertility age and the fact that most instances involved c/s and other procedures aimed at enhancing reproductive capacity that resulted in problems, there is a highly significant disparity between the age groups. Regarding to the past surgical history-positive and PSH-negative patients differ significantly from one another. At p value 0.0001, patients with a positive surgery history have a highly significant variance in hernias. Moreover, the p value for wound infection is 0.003. The current case is an uncommon result of a suture granuloma that developed five months after an appendectomy and had intra-abdominal extension from the abdominal wall that occurred due to un-absorbable suture. (stitch granuloma it is 0.005). that agree with (Anitha, Harini, & Mahalakshmi, 2023) who found The majority of the surgical operations performed prior to the scar endometriosis (87.4%) were obstetric procedures; of them, 25 individuals had Caesarean sections, and only three had episiotomies. wound dehiscence it is p value 0.001 in patients with PSH. This occurrence as a result for frequent surgery the skin layer not healing well. Septic pelvic thrombophlebitis has significant difference level 0.009 in patients without PSH that may be due to pressure of pregnancy on pelvic veins, which developed into thrombophlebitis.Uterine scaring have p value 0.0001highly significant in patients with PSH, which related with c/s and curettage surgeries. Pelvic infection/fluid that have difference in patients who not have PSH at p value 0.018 that maybe happened due rupture of ovarian cyst in patients with PCOD.

According to medical history we found the most common condition detected was hypertension, which affected 121 patients (30.3%) classify into (chronic hypertension (52, 13%- gestational 69, 17.3%). The remaining 279 patients, or 69.8%, did not have any kind of hypertension. While in Ibrahim study disagree with us, hypertension was second common disease after DM at 25% out of cases (Ibrahim et al., 2021). HTN have association with late complications at P value 0.041, while there are no associations between intra-operative and early complications.

According to the duration of surgery duration of surgery (less than one hour had highest percentage60.7%),(1-2 hours(25.4%0), (2–3 hours14%) which have significant difference in late complications at P value 0.033. we agree with Erekson study that conduct to operative time more than 4 hours compared with less than 1 hour (Erekson et al., 2011), and longer duration of surgery were associate with all the postoperative complications (Mangi, Mlay, Oneko, & Maokola, 2022).

6. Conclusions

Complications during /after gynecologic surgery higher in middle age of female (24—34) and (35-- -45) age groups and were highly significant difference between patients in late complications. Majority of patients were married and residence in urban area. Number of parities for patients was 2-3 children and had significant highly in late complications, while most of patients not had abortions. While BMI of female within normal level and some of them full into overweight level. Medical history for patients was hypertension in majority of them, which classify into chronic and gestational. Past surgical history correlated with early complications that appeared in UTI at highly significant level. In addition, highly significant in late complications especially in hernia, stitch granuloma, wound dehiscence and uterine scaring.

Pre-operative blood transfusion had highly significant in intra-operative complications for patients who did not receive blood before surgery.

Limitations of the study

the researcher faced some difficulties through period of study like measuring BMI for patients because these women had recent surgery and some of them stay at CCU, Also there are insufficient time for data collected to conducting the research.

Ethical issues

All patients were willing to participant and they informed about the data we collected from them and considering ethics when verbal information collected.

Conflict of interest

the authors declare no conflicts of interest.

Funding

this study didn't receive any financial supports.

Recommendations

more research are still needed to evaluate the risk factor for complications after gynecological surgery among Iraqi women. The researchers can benefit from this study to conduct further research to learn more about type of complications.

Data sharing statement

supplementary data can be shared with corresponding author upon reasonable request.

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