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ORIGINAL RESEARCH

Analysis of Prevalence & risk factors of Acute Postoperative Pain after Elective Gynaecologic and General Surgeries: An Institutional Based Study

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ABSTRACT

Background: Pain, defined as an unpleasant sensory and emotional experience related to actual or potential tissue damage, is commonly experienced postoperatively as a result of surgical procedures such as incisions, tissue dissection, and manipulation.

Materials and Methods: Adult patients undergoing elective surgery were included, with those unable to communicate or unwilling to participate being excluded. Data collected included demographic details, preoperative pain scores, and surgical details, type of anesthesia, peri-operative pain management, and postoperative analgesics. Pain scores were assessed postoperatively using a numerical rating scale, and the data was analysed using SPSS software.

Results: At 4 hours, mild to moderate pain was seen in 56 percent of the patients while severe pain was present in 18 percent of the patients. At 24 hours, mild to moderate pain was seen in 76 percent of the patients while severe pain was present in 16 percent of the patients. At 36 hours, mild to moderate pain was seen in 63 percent of the patients while severe pain was present in 12 percent of the patients. At 48 hours, mild to moderate pain was seen in 57 percent of the patients while severe pain was present in 16 percent of the patients. At different time intervals, significantly higher number of patients had mild to moderate pain. Non-significant results were obtained while correlating the occurrence of pain with type of surgery and with type of anesthesia.

Conclusion: Effective acute postoperative pain management requires tailored interventions based on patient demographics and procedural considerations and appropriate selection of anesthesia and mode of surgeries.

Keywords: Pain, Analgesic, Gynaecologic.

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INTRODUCTION

Pain, defined as an unpleasant sensory and emotional experience related to actual or potential tissue damage, is commonly experienced postoperatively as a result of surgical procedures such as incisions, tissue dissection, and manipulation.[1, 2] Despite numerous efforts to improve postoperative pain management (POPM), global studies have shown significant challenges, with a substantial number of patients reporting uncontrolled pain even with modern medical advancements and improved access to potent analgesics. A varying prevalence of moderate to severe postoperative pain has been reported across different countries, with some facing higher incidences and inadequate treatment.[3]

Effective pain management involves a combination of pharmacological and nonpharmacological approaches, and the integration of current knowledge and practices is essential to enhance patient outcomes and minimize adverse events.[3,4]Acute postoperative pain is a significant issue following elective gynaecologic and general surgeries, impacting immediate recovery and long-term outcomes. It is nearly ubiquitous, influenced by diverse factors such as surgical techniques, patient characteristics, and pain sensitivity.[5, 6] Effective management strategies are

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crucial not only to alleviate suffering but also to minimize complications and enhance recovery rates. Thus, understanding the prevalence and risk factors associated with postoperative pain in these surgeries is essential for optimizing patient care and improving overall surgical outcomes.

MATERIALS AND METHODS

The present study was conducted for assessing the prevalence and risk factors for acute postoperative pain after elective gynaecologic and general surgeries. A total of 100 adult patients undergoing elective surgery were included, with those unable to communicate or unwilling to participate being excluded. Data collected included demographic details, preoperative pain scores, and surgical details, type of anesthesia, peri-operative pain management, and postoperative analgesics. Pain scores were assessed postoperatively using a numerical rating scale[7- 9] and the data was analysed using SPSS software.

RESULTS

A total of 100 patients, aged 20 and older, were enrolled in the study following admission for elective surgery out of which 34% of participants fell within the 20-40 age group, 37% were in the 41-60 age group, and 29% were over 60 years old (p-value > 0.05). Out of 100 patients, Gynecology surgery was performed in 55 percent of the patients while in the remaining 45 percent of the patients, general surgical procedures were performed (p-value > 0.05). Among 100 patients enrolled in the present study, general anesthesia, spinal anesthesia and peripheral nerve block were the type of anesthesia in 45 percent, 34 percent and 21 percent of the patients respectively (p-value > 0.05).At 4 hours, mild to moderate pain was seen in 56 percent of the patients while severe pain was present in 18 percent of the patients. At 24 hours, mild to moderate pain was seen in 76 percent of the patients while severe pain was present in 16 percent of the patients. At 36 hours, mild to moderate pain was seen in 63 percent of the patients while severe pain was present in 12 percent of the patients. At 48 hours, mild to moderate pain was seen in 57 percent of the patients while severe pain was present in 16 percent of the patients. At different time intervals, significantly higher number of patients had mild to moderate pain. While assessing the correlation between demographic data and occurrence of pain, non-significant results were obtained.Non-significant results were obtained while correlating the occurrence of pain with type of surgery and with type of anesthesia.

Table 1: Age distribution

Age-wise distribution	Number	Percentage
20 to 40 years	34	34
41 to 60 years	37	37
More than 60 years	29	29
Total	100	100
p-value	0.751	

Table 2: Type of surgery

Type of surgery	Number	Percentage
Gynaecology	55	55
General surgery	45	45
Total	100	100
p-value	0.451	

Table 3: Type of anesthesia

Type of anesthesia	Number	Percentage
General anesthesia	45	45
Spinal anesthesia	34	34
Peripheral nerve block	21	21
Total	100	100
p-value	0.800	

Table 4: History of chronic pain

History of chronic pain	Number	Percentage
Yes	23	23
No	77	77
Total	100	100
p-value	0.040 (Significant)	

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Table 5: Prevalence of postoperative pains at various time intervals

Time postoperatively (hours)	Mild to moderate pain (NRS 3 to 7)		Severe pain (NRS > 7)		p-value
	Number	Percentage	Number	Percentage	
4 hours	56	56	18	18	0.001*
24 hours	76	76	16	16	0.000*
36 hours	63	63	12	12	0.000*
48 hours	57	57	16	16	0.003*

*: Significant

Table 6: Correlation of age and pain

Time interval	Type of surgery	Mild to moderate pain (NRS 3 to 7)	Severe pain (NRS > 7)	p-value
4 hours	20 to 40 years	18	7	0.19
	41 to 60 years	18	7	
	More than 60 years	20	4	
24 hours	20 to 40 years	25	8	0.11
	41 to 60 years	28	7	
	More than 60 years	23	1	
36 hours	20 to 40 years	20	5	0.76
	41 to 60 years	24	6	
	More than 60 years	21	1	
48 hours	20 to 40 years	17	8	0.39
	41 to 60 years	19	6	
	More than 60 years	20	2	

Table 7: Correlation of type of surgery and pain

Time interval	Type of surgery	Mild to moderate pain (NRS 3 to 7)	Severe pain (NRS > 7)	p-value
4 hours	Gynaecology	32	10	0.82
	General surgery	24	8	
24 hours	Gynaecology	43	8	0.60
	General surgery	33	8	
36 hours	Gynaecology	33	7	0.67
	General surgery	30	5	
48 hours	Gynaecology	34	5	0.12
	General surgery	23	11	

Table 8: Correlation of type of anesthesia and pain

Time interval	Type of surgery	Mild to moderate pain (NRS 3 to 7)	Severe pain (NRS > 7)	p-value
4 hours	General anesthesia	25	7	0.46
	Spinal anesthesia	21	7	
	Peripheral nerve block	10	4	
24 hours	General anesthesia	35	6	0.11
	Spinal anesthesia	30	5	
	Peripheral nerve block	11	5	
36 hours	General anesthesia	30	4	0.98
	Spinal anesthesia	25	5	
	Peripheral nerve block	8	3	
48 hours	General anesthesia	27	5	0.34
	Spinal anesthesia	18	6	
	Peripheral nerve block	12	5	

DISCUSSION

Acute postoperative pain is a significant concern following both elective gynaecologic and general surgeries. This pain not only affects the immediate postoperative period but can also influence recovery and patient outcomes. Understanding its prevalence

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and associated risk factors is crucial for effective pain management strategies and patient care.

In elective gynaecologic surgeries, such as hysterectomy or ovarian procedures, and general surgeries ranging from hernias cholecystectomies appendectomies to more complex procedures, acute postoperative pain is nearly universal to varying degrees. Factors contributing to this pain can be multifaceted, involving surgical techniques, patient demographics, and individual pain thresholds.[7,8]Effective pain management strategies can alleviate suffering, reduce complications, and facilitate quicker recovery times.[10]Pharmacological pain management strategies includenon-opioids, such as paracetamol, traditional non-steroidal anti-inflammatory drugs (NSAIDs), selective cyclooxygenase-2 (COX-2) inhibitors or metamizole, non-selective COX inhibitors as well as selective COX-2 inhibitors, opioid analgesics, Gabapentinoids etc.Nonpharmacologic methods that can be used to relieve or alleviate pain include methanol application to the skin, vibration, aromatherapy, therapeutic touch, exercise, positioning, music therapy, reflexology, hypnosis, prayer, yoga, transcutaneous electrical nerve stimulation, hot application, cold application etc. Thus, exploring the prevalence and risk factors associated with acute postoperative pain in both gynaecologic and general surgeries is vital for optimizing patient care and surgical outcomes.[10, 11]

A total of 100 patients, aged 20 and older, were enrolled in the study following admission for elective surgery out of which 34% of participants fell within the 20-40 age group, 37% were in the 41-60 age group, and 29% were over 60 years old. Out of 100 patients, Gynecology surgery was performed in 55 percent of the patients while in the remaining 45 percent of the patients, general surgical procedures were performed. Among 100 patients enrolled in the present study, general anesthesia, spinal anesthesia and peripheral nerve block were the type of anesthesia in 45 percent, 34 percent and 21 percent of the patients respectively.Ndebea AS et al[11]investigated these at Kilimanjaro Christian Medical Centre in Northern Tanzania.A prospective cohort study was carried out from December2016 to April 2017. Patients ≥18 years admitted for elective general or orthopedic surgery were included in the studydemographic data were collected during a pre-operative visit, and pain was assessed with a numerical rating scale (NRS 0–10) at 4, 24, 36 and 48 hours postoperatively. A NRS >3 was considered as moderate to severe postoperative pain. Potential risk factors for postoperative pain were identified using univariate and multivariable binary logistic regression analyses. A total of 281 patients were included in the study. The prevalence of postoperative pain was 61%, 73%, 67% and 58% at 4, 24, 36 and 48 hours after surgery, respectively. Pethidine was the most frequently prescribed analgesic for postoperative pain management (85.1%) in the first 24 hours postoperatively; only 1% received paracetamol or diclofenac, and 13% received tramadol. In the multivariable model, general anesthesia and intra-operative analgesia were significant risk factors for postoperative pain. Pain is still inadequately managed at Kilimanjaro Christian Medical Centre leading to a high prevalence of reported postoperative pain.[11]

At the present study, at 4 hours, mild to moderate pain was seen in 56 percent of the patients while severe pain was present in 18 percent of the patients. At 24 hours, mild to moderate pain was seen in 76 percent of the patients while severe pain was present in 16 percent of the patients. At 36 hours, mild to moderate pain was seen in 63 percent of the patients while severe pain was present in 12 percent of the patients. At 48 hours, mild to moderate pain was seen in 57 percent of the patients while severe pain was present in 16 percent of the patients. At different time intervals, significantly higher number of patients had mild to moderate pain. While assessing the correlation between demographic data and occurrence of pain, non-significant results were obtained.Non-significant results were obtained while correlating the occurrence of pain with type of surgery and with type of anesthesia.Sommer M et al[12]identified predictors of moderate to severe acute postoperative pain. A total of 1490 patients undergoing heterogeneous surgical procedures recorded their pain 3 times a day on a 100-mm visual analog scale from the day before the operation until 5 days post-operation. For each postoperative day, pain intensity was classified as moderate when the mean pain score was 41 to 74mm and as ‘‘severe when the mean pain score was 75 to 100 mm. Using logistic regression analyses, they examined the predictive value of a comprehensive set of preoperative and perioperative variables for moderate to severe pain. The most important predictors seemed to be; preoperative pain, expected pain, surgical fear, and pain catastrophizing. Several predictive factors of postoperative pain were identified in this study. These factors could be taken into account in postoperative pain management.[12]

CONCLUSION

Pain constitutes a complex and multifaceted experience that varies significantly among individuals. The variations in pain perception are shaped by a combination of biological factors, psychological conditions and characteristics, as well as the surrounding social environment. Effective acute postoperative pain management requires tailored interventions based on patient demographics and procedural considerations.

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