

The Effectiveness of Post-Operative Pain Regime in C-Section Mothers, Lira Regional Referral Hospital

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Abstract: Purpose: This study sought to explore the effectiveness of pain management in post-caesarian section mothers in Lira Regional Referral hospital

Methods: Using a descriptive cross sectional design, data was collected from 110 randomly selected mother who underwent Caesarian section delivery in Lira regional referral hospital for a period of 2months. An interviewer administered questionnaire was used to collect data as well as review of patients' charts to discern the analgesic drug given to the post C-section mother in the first 24hrs.

Findings: Out of the 110 participants who had C-section within the study period, 65.5% suffered excruciating pain, 30.9% got severe pain and 3.6% experienced moderate pain. None of the patients who suffered excruciating pain was given strong opioids like morphine, pethidine but they were instead treated with weak opioid like tramadol (67.6%) or NSAIDs (19.7%). Those with severe pain were treated predominantly with weak opioids (58.8%), although 14.7% received strong opioids. Overall, only 79.1% of the C-section mothers reported the got effective pain control

Conclusion Most mothers who undergo CS at LRRH suffer either excruciating pain or severe pain, despite that, the commonly used analgesia in Post-Operative Pain Management at the facility are weak opioids and NSAIDs irrespective of whether a mother is suffering excruciating or severe pain. Effective pain control after C-section at LRRH is achieved in only 79.1%.

Keywords: Effectiveness, Post-Operative, Pain Regime, Caesarian, LRRH

INTRODUCTION

Pain refers to a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive and social components¹. Surgical procedures like Caesarean section (C-section) is associated with moderate-to-severe postoperative pain which influence postoperative recovery and patient satisfaction as well as breastfeeding success and mother-child bonding². Effective postoperative pain management is a key priority in women undergoing cesarean delivery³. Whereas there are pharmacological and non-pharmacological approaches to post-operative pain management, pharmacologically, pain is managed according to the pain severity using the WHO analgesic ladder⁴.

Postoperative pain management (POPM) remains a major problem in Africa with a prevalence of postoperative pain being as high as 95.2% especially in low- and middle-income countries⁵. Even in the highly developed settings with the most sophisticated types of analgesics, loco-regional anesthesia techniques, and Acute Pain Services, inadequate POPM still occurs⁶. In Uganda a study at Mulago National Referral Hospital, a tertiary teaching hospital, showed that patients have inadequate pain control after orthopedic and general surgery⁷. In our setting, little is yet known about the POPM after obstetric surgery. Indeed, POPM is of great concern after C-section because early recovery is very important for a mother who is expected to take care and bond with her newborn immediately after the procedure².

Poor postoperative pain control may impact on recovery from surgery of any kind⁸. It may lead to increased incidence of chronic pain, deep vein thrombosis, pulmonary embolism, coronary ischemia, myocardial infarction, pneumonia, poor wound healing, insomnia, and demoralization. Other studies have reported complications of poor POPM to include; increased risk of thrombo-embolic events, respiratory impairment, anxiety, sleep disturbance, post-traumatic stress syndrome^{9, 10 & 11}. This study therefore sought to explore the effectiveness of pain management in post-caesarian section mothers in Lira Regional Referral hospital

OBJECTIVE

- 1) To assess post-operative pain among C-Section mothers at Lira regional referral hospital
- 2) To determine the commonly used analgesics in POPM of C-section mothers at Lira regional referral hospital

- 3) To assess the effectiveness of the pain management used in POPM of C-Section mothers at Lira regional referral hospital

METHODS

Using a descriptive cross sectional study design, data was collected from 110 post C-section mothers admitted at the postnatal ward of Lira Regional Referral Hospital, within the past 24-48 hours. Questionnaires were used to collect data on socio-demographic, post-operative pain intensity using Visual analogue scale, indication for C-Section, the practice of postoperative pain management, analgesics used, anesthesia technique and the effectiveness of the pain management in Lira Regional Referral hospital. A pretested and pre-coded interviewer administered questionnaire was used to collect quantitative data on the above variables. Data collected was entered and analyzed with SPSS version 23.

Lira Regional Referral Hospital (LRRH), is a public hospital located in Lira City; Northern region of Uganda. The hospital has a capacity of 254 beds and is the referral hospital for the surrounding districts of Amolatar, Apac, Dakolo, Lira, Kole, Lira University Hospital and Oyam. Approximately 140 C-section deliveries happen in LRRH per month.

RESULTS

1. BIO-DATA

All the 110 sampled participants who had C-section during the study period were interviewed thus representing 100% response rate. The mean age of the participant was 27.8 years (SD = ± 6.727), range 16-39 years.

Table 1: Baseline Characteristic of C-Section Mothers

Category	Frequency (n)	Percent (%)
Age-group		
Child-mother <18yrs	4	3.6
Youths (18-35yrs)	66	60
Adults (>35yrs)	40	36.4
Education level		
Primary education	33	30
Secondary education	53	48.2
Degree holder	17	15.5
Occupation		
Unemployed	6	5.5
Housewife	32	29.1
Informal sector (small business, vendor etc)	40	36.4
Formal employment with salary	32	29.1
Delivery attempted prior to C-section		
No trial	35	31.8
Vaginal delivery	75	68.2
Indication for C-section		
Obstructed labor	31	28.2
Previous scar	22	20
Big baby	20	18.2
Inadequate pelvis	7	6.4
Elective CS	7	6.4
Mal-position	7	6.4
Severe pre-eclampsia	3	2.7
Others specify	13	11.8
Total	110	100

According to table 1, the greatest proportion of mothers who underwent C-section during the study period were within the age group of 18-35yrs (60%), followed by >35yrs (35.4%) and <18years (child mothers) were 3.6%. The majority of respondents had attained secondary education (48.2%), followed by primary level education (30%) and bachelor degree holders (15.5%) respectively. Whereas 5.5% of the study participants were not in any gainful occupation, 65.5% were either in the informal sector or formal employment.

Of the 110 mothers who were delivered by C-section during the study period, 68.2% were as a result of failed vaginal delivery since they were first allowed to try to deliver vaginally. Whereas the commonest indication for C-section was obstructed labor 28.2%, followed by previous scar (20%), big baby (18.2%), elective C-section, Malposition and inadequate pelvis each account for 6.4% respectively

2.0 POST C-SECTION PAIN INTENSITY

After being delivered by C-section, the mothers experienced various levels of pain intensity and they exhibited some psycho-emotional responses as follows:

Table 2 Post-operative pain

	Psycho-emotional Response				Total
	Restlessness	Cried in tears	Shouted	Others	
Pain Intensity					
Moderate	4(80)	0	0	1(20)	5 (3.6%)
Severe	20 (58.8)	7(20.6)	5 (14.7)	2 (5.9)	34(30.9%)
Excruciating	21 (29.6)	46(64.8)	0	4(5.6)	71 (65.5%)
Total	45 (40.9)	53 (48.2)	5 (4.5)	7(6.4)	110 (100%)

From Table 2, the majority of the study participants suffered excruciating pain (n=71, 65.5%) and severe pain (n=34, 30.9%). Psycho-emotionally, 64.8% of the mother who suffered excruciating pain cried in tears but only 20.6% who cried in tear had severe pain (P value 0.0001, Chi-Square 31.313, df 6). Therefore, a post-operative patient crying in tears should alert a health worker of excruciating pain and should be a pointer for immediate action. Restlessness after C-section tended to predominate in mothers with moderate pain (80%) and severe pain (58.8%) compared with excruciating pain (29.6%).

3.0 IMMEDIATE POST-OPERATIVE PAIN TREATMENT

Table 3 Pain Management

Pain Intensity	Analgesia Given immediately patient reported pain				Total
	No Analgesics	NSAIDs, (Paracetamol)	Weak opioid (Tramadol, Codeine)	Strong opioids (Pethedine, Morphine, Oxycodine)	
Moderate	-	1 (20)	4 (80)	-	5
Severe	4(11.8)	5 (14.7)	20 (58.8)	5 (14.7)	34
Excruciating	9 (12.7)	14 (19.7)	48 (67.6)	-	71
Total	13 (11.8)	20 (18.2)	72 (65.5)	5 (4.5)	110 (100%)

As shown in table 3, the majority of patients who suffered excruciating were not given strong opioids like pethidine, or morphine etc. but were either given weak opioids (67.6%), or NSAIDs (19.7%) or no analgesics (12.7%). In comparison most patients with severe pain tended to be treated with weak opioids predominantly (58.8%), although 14.7% received strong opioids (P value= 0.05). Overall 13 out 110 (11.8%) mothers were not given any analgesics after C-section, which is a very cruel thing to happen in hospital. According to WHO analgesic ladder, severe and excruciating pain should be treated with strong opioids unless there was a strong contraindication.

4.0 EFFECTIVENESS OF POST OP PAIN MANAGEMENT IN LRRH

Table 4. Effectiveness of Post Op Pain Management

Pain intensity	Effectiveness of POPM			Total
	Not effective	Moderately effective	Very effective	
Moderate	3 (60)	1 (20)	1 (20)	5
Severe	6 (17.6)	10 (29.4)	18 (52.9)	34
Excruciating	14 (19.7)	43 (60.6)	14 (19.7)	71
Total	23 (20.9)	54 (49.1)	33 (30)	110

Generally, moderate to very effective pain control was achieved in 87 out of 110 mothers (79.1%) hence 20.9% of C-section mothers from LRRH do not get effective pain management post C-section (table 4). Significantly very effective pain relief was reported by patients who suffered severe pain (52.9%), followed by excruciating pain (19.7%) and moderate pain (20%) (P value 0.001). The greatest proportion of patients who reported that their pain treatment regime was not effective were those who had moderate pain (60%), followed by those with excruciating (19.7%) and severe pain (17.6%). There was a subgroup who were not given any analgesic post operatively (n=13, 11.8%) and they all reported poor pain control. Effective pain relief and a pain free post-operative period should be the goal of any quality surgical care.

DISCUSSION

The study participant consisted of 110 C-section mothers with average age of 27.8 years ranging from 16-39 years, of which C-section was most frequent amongst the youth of 18-35 years (60%). The majority are married (93%) and most of them obtained at least secondary (48%) followed by primary education (30%) and degree holders (16%). The most common indications for the C-section were: obstructed labor (28.2%) followed by previous scar (20%) and big baby (18.2%). Most C-section mothers at LRRH attempted normal vaginal delivery prior to the C-section (68.2%) and most of these mothers are in a gainful occupation (65.5%). These findings are similar to other research reports, for example Sousa, Pitangui, Gomes, *et al* (2009)¹² found significant association between age groups with indication for C-section and delivery method attempted prior to C section. The indication for C-section in this study is also similar to the finding of Abebe, Gebeyehu, Kidane, *et al*, (2015)¹³. According to Singh, Pradeep, and Jauhari (2020)¹⁴, females who presented with previous history of cesarean have a significantly greater chance of cesarean section ($P = 0.0001$). Another study found that maternal education, wealth index, paternal education, and place of residence are significantly associated with the utilization of C-section delivery¹⁵.

Pain intensity after C-section can influence postoperative recovery and patient satisfaction as well as successful breastfeeding and mother-child bonding². In this study, the majority of the mothers suffered excruciating pain ($n=71$, 65.5%) and severe pain ($n=34$, 30.9%). Psycho-emotionally, 64.8% of the mother who suffered excruciating pain cried in tears relative to the 20.6% who cried tears due to severe pain (P value 0.0001, Chi-Square 31.313, df 6). In their study Natalia Carvalho Borges *et al.*, 2017¹⁶, reported high-intensity postoperative pain in post-cesarean section women and that the incidence of immediate postoperative pain is as high as 92.7%. Whereas in their study Sousa *et al.*, (2009)¹² reported the prevalence of unbearable (excruciating) post-operative pain to be as low as 10%, severe pain (strong) 20%, Demelashet *et al* (2022)¹⁷ reported the incidence of moderate to severe postoperative pain after a cesarean section as high as 85.5% and aver that, this is unacceptably high.

The WHO analgesic ladder recommend that severe and excruciating pain should be treated with strong opioids unless there was a strong contraindication⁴. This study however found that, the majority of patients with excruciating were given weak opioids (67.6%) and 12.7% received no analgesic compared patients with severe pain who tended to be treated with weak opioids predominantly (58.8%), strong opioids (14.7%), (P value= 0.05). According to a study done by Ismail *et al* (2019)¹⁸, opioids and NSAIDs are the most commonly administered analgesia for postoperative C-Section pain management. Similarly, Kintu *et al.*, 2019⁷ found out that pain control medications used in the first 24 h following cesarean section at this Mulago hospital Kampala included Diclofenac (NSAID) only, Pethidine (Strong Opioid) only, Tramadol (weak opioids) only and multiple pain medications. Woldegerima *et al.* (2020)¹⁹ aver that there is no current “gold standard” post-cesarean pain management, although, the most popular pain management modalities have been; systemic and intra-theal administration of opioids, patient-controlled analgesia, intra-muscular injection of Non-steroidal Anti-inflammatory Drugs (NSAID) and regional nerve blocks. Therefore, it appears there is no standard protocol for post C-section pain management, a call for action by anesthesiologist.

Effective postoperative pain management is a key priority in women undergoing cesarean delivery². In this study moderate to very effective pain control was achieved in 79.1% of cases thus 20.9% did not get any pain relief. Patients who reported very effective control of their pain amongst those who suffered severe pain were 52.9%, followed by excruciating pain (19.7%) and moderate pain (20%), (P value 0.001). Similar finding was reported by Osorio, Ceballos and Moyano, (2022)²⁰ that the effectiveness of pain control was 81.48% at 24 hours. Kintu *et al.* (2019)⁷ reported that 68% of the C-section mothers were satisfied with their pain control in Mulago hospital. In pain management, protective factors for poor pain control include administration of non-steroidal anti-inflammatory drugs during the Post-operative Period ($PR = 0.11$) and use of analgesia controlled by the patient ($PR = 0.29$), (W Osorio, C Ceballos and J Moyano 2022)²⁰ Another study reported IM analgesia offer the least effective pain relief resulting in the incidence of moderate-severe pain of 67.2% and of severe pain as 29.1% when compared with patient controlled analgesic and epidural analgesia (Dolin S.J¹, Cashman J N, and Bland J M (2002)²¹. However, in this study approximately $n=23$ (21%) patients whose pain was not relieved at all, $n=13$ (56.5%) were not give any analgesics within 24h of the surgery (P Value 0.0001). This is very unkind and calls for urgent post C-section pain management protocol.

CONCLUSION

Most mothers who undergo CS at LRRH suffer excruciating pain and severe pain but despite that, the commonly used analgesia in Post-Operative Pain Management at the facility are weak opioids and NSAIDs without cognizance whether a mother is suffering excruciating or severe pain. Effective pain control after C-section at LRRH is achieved in only 79.1%. There is urgent need for pain management protocol in LRRH.

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