Audit of Post Caesarean Section Pain Management in Tawam Hospital, Al Ain, United Arab Emirates

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Abstract

Objective: To evaluate the consistency in management of postoperative caesarean section pain in Tawam Hospital according to evidence based practice and to introduce change in practice and to bring uniformity in practice for post cesarean section pain relief.

Methodology: A retrospective audit of hundred consecutive women undergoing cesarean section in Tawam hospital, Al Ain, UAE from 1st January 2008 till 30th April 2008. A purpose-designed performa was used to collect the data including the Body mass index BMI, Type of cesarean section, Duration of cesarean section, types of anesthesia, First pain scoring (day 0) and type, dosage and route of pain relief used and finally post medication pain score of patient. Tawam Hospital is a 500 bedded hospital with a delivery rate of 4000 per year and cesarean section rate of 15 %.

Results: Patients who had a BMI >30kg/m² were 42 %. Emergency caesareans were done in 60% of the patients. Most of the caesareans were completed within 1.5 hrs. Regional anesthesia was given in 59% of the cases. Analgesia requirement was reduced after regional anesthesia. Only 30% of the patients had pain scoring within the 1st hour of cesarean section. Patients received variable pain relief medications without correlation to the pain score. Post analgesia pain score was done in 62% of the patients only.

Conclusion: There is no uniform or evidence based practice for post operative analgesia in cesarean section in our Institution therefore a Clinical practice guideline is issued to achieve evidence based practice and to reaudit to review change in practice.

Key words: Postoperative pain score, analgesia, BMI, Body mass index, cesarean section

Introduction

The effective relief of pain is of paramount importance to anyone treating patients undergoing surgery. This should be achieved for humanitarian reasons, but there is now evidence that pain relief has significant physiological benefit. Not only does effective pain relief mean a smoother postoperative course with earlier discharge from hospital, but it may also reduce the onset of chronic pain syndromes.

Pain serves a biological function. It signals the presence of damage or disease within the body. Pain is assessed by different tools. In Tawam hospital which is a JCIA accredited hospital, Pain is the fifth vital sign according to the JCIA standards and all adult in-patients are charted for pain on the Wong Baker pain chart scoring between 0 and 10 (Figure below)

Post operative care as advised in the Cesarean section guideline no 132 by NICE states that after recovery from anaesthesia, observations (respiratory rate, heart rate, blood pressure, pain and sedation) should be continued every half hour for 2 hours, and hourly thereafter for the first 24 hours provided that the observations are stable or satisfactory. If these observations are not stable, more frequent observations and medical review are recommended.¹² For women who have had intrathecal opioids, there should be a minimum hourly observation of respiratory rate, sedation and pain scores for at least 12 hours for diamorphine and 24 hours for morphine.³ For women who have had epidural opioids or patient-controlled analgesia with opioids, there should be routine hourly monitoring of respiratory rate, sedation and pain scores throughout treatment and for at least 2 hours after discontinuation of treatment.⁴ For adequate pain relief it is advisable that patient-controlled analgesia using opioid analgesics should be offered after cesarean because it improves pain relief. If there is no contraindication, non-steroidal anti-inflammatory drugs should be offered post-cesarean as an adjunct to other analgesics, because they reduce the need for opioids.⁵ Regular and preemptive analgesia is advised to have early mobility and patient recovery. This audit was conducted to determine the consistency in care for postoperative analgesia in cesarean section and to bring it to evidence based practice.
Patients and Methods

The audit was conducted at the department of obstetrics and gynecology, Tawam Hospital, Al Ain, UAE from 1st January 2008 till 30th April 2008.

**Sampling technique:** A sample of hundred consecutive patients [non-probability].

**Selection criteria:** All patients undergoing all types cesarean section.

**Data collection procedure:** Purpose built performa was used and the detailed data collected by the author from the patient’s medical records and analyzed.

**Data analysis:** The data collected was analyzed in the SPSS version 14.

Details of BMI were recorded and divided into 8 categories ranging from unknown, <18 to > 50 kg/m² as higher BMI group requires more analgesia.

**Types of cesarean section** were recorded as elective and emergency.

**Duration of surgery** was divided into 1 hour, 1.5 hours and 2 hours. Prolonged surgery is associated with higher analgesia needs.

**Types of anesthesia** audited were general, spinal, epidural and failed spinal/general. Regional anesthesia is associated with reduced analgesia needs.

**First pain scoring** (day 0) done in the first 24 hours was divided in 8 categories.

**Pain score/medication used** was audited into 0, 1-5, 6-10 and none. The following commonly used pain medications were studied pethidine [meperidine], diclofenac [NSAID] and paracetamol.

**Post analgesia score** was audited. The results were entered on SPSS 14 for analysis.

### Results

A total of 100 patients audited in the sample who underwent cesarean section.

**BMI:** (Graph 1) There were 14 patients in whom no BMI was recorded while no patients had a BMI < 18 kg/m². Fifteen patients were between 18-24 kg/m². Thirty three patients were > 24-30 kg/m². The >30 - <35 kg/m² were 23 patients, > 35- <40 kg/m² were 11 patients, >40-< 50 kg/m² were 3 patients and >50 kg/m² was 1. In review 48% of our patients fell in the category of Normal BMI while 38 % were morbidly obese.

**Type of Cesarean Section:** Sixty patients underwent emergency cesarean section while 40 patients underwent elective cesarean section.

**Duration of surgery:** Sixty five surgeries were completed within 1 hour, 33 were completed in 1.5 hours and 2 were completed in 2 hrs.

**The type of anesthesia:** As shown in table 1, 55 patients received Spinal anesthesia, 37 received general anesthesia, 4 received top up of epidural and 4 patients had a failed spinal anesthesia and needed to convert to general anesthesia.

<table>
<thead>
<tr>
<th>Types of anesthesia</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal</td>
<td>55</td>
</tr>
<tr>
<td>General</td>
<td>37</td>
</tr>
<tr>
<td>Epidural</td>
<td>4</td>
</tr>
<tr>
<td>Failed spinal /General</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pain score 0-10 [n]</th>
<th>Injection Pethidine [Meperidine]</th>
<th>Diclofenac suppository [NSAID]</th>
<th>Inj Paracetamol</th>
<th>Post analgesia score in patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 [15]</td>
<td>100 mg IM* [2]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1- 5 [77]</td>
<td>100 mg IM* [51]</td>
<td>100 mg PR*** [9]</td>
<td>1000 mg IV** [2]</td>
<td>40 [64%]</td>
</tr>
<tr>
<td>6- 10 [3]</td>
<td>100 mg IM* [2]</td>
<td>100 mg PR*** [1]</td>
<td>0</td>
<td>3 [100%]</td>
</tr>
</tbody>
</table>

IM* Intramuscular, IV** Intravenous , PR*** per-rectal

<table>
<thead>
<tr>
<th>No. of pain assess.</th>
<th>Analgesia given in cases</th>
<th>Post analgesia Score in cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>71</td>
<td>45</td>
<td>63</td>
</tr>
<tr>
<td>2nd</td>
<td>74</td>
<td>41</td>
<td>55</td>
</tr>
<tr>
<td>3rd</td>
<td>50</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>4th</td>
<td>39</td>
<td>29</td>
<td>74</td>
</tr>
<tr>
<td>Total</td>
<td>234</td>
<td>143</td>
<td>61</td>
</tr>
</tbody>
</table>

First pain score done in the first 24 hours postoperatively: This parameter was audited under 8 subdivisions. At 1 hr only 15 patients had pain score; another 15 patients had pain score in the 2nd hr. Ten patients had pain score after 3 hrs of surgery, 8 patients after 4 hours, 11 patients after 6 hours, and 14 patients after 8 hours. Thirteen patients after 12 hours and 14 had the pain score...
documented for the first time between 12- 24 hours of surgery.

**Pain score and the Medication used and its dosage:** Table 2 shows pain scoring and analgesia used with dosage and route. As is shown in table, fifteen patients had a pain score of zero and 2 received IM pethidine [opiod] and there was no post analgesia score. Seventy seven had a pain score of 1-5 and 51 received pethidine, 9 received diclofenac [NSAIDS] and 2 had paracetamol. Post analgesia scoring was done in only 40 patients i.e. 64%. Three patients had pain score of 6-10; out of them 2 received pethidine and 1 had diclofenac. Post analgesia score was done in all the cases. The last category had no pain scoring mentioned and 3 received pethidine and 1 received diclofenac and 50% had post analgesia scoring.

**Post analgesia pain score (Table 3):** After the 1st assessment 71 patients received analgesia while only 45 cases had post analgesia pain score which is 63%. Second assessment 74 patients received analgesia while only 41 cases had post analgesia pain score which is 55%. Third assessment 50 patients received analgesia while only 28 cases had post analgesia pain score which is 56%. At the fourth assessment 39 patients received analgesia while only 49 cases had post analgesia pain score which is 74 %. In all if we take the first 4 pain assessments which were done. Patients had analgesics administered 234 times and only 143 times was the post analgesia scoring done which is 61%. We can only gauge the pain relief and adequacy of our analgesics by the post analgesia pain score.

**Discussion**

The goal for postoperative pain management is to reduce or eliminate pain and discomfort with a minimum of side effects. Postoperative pain relief must reflect the needs of each patient and this can be achieved only if many factors are taken into account. These may be summarized as clinical factors, patient-related factors and local factors. In the final analysis the ultimate determinant of the adequacy of pain relief will be the patient's own perception of pain. The World Health Organization Analgesic Ladder was introduced to improve pain control in patients with cancer pain. However, it has lessons for the management of acute pain in post surgical cases as it employs a logical strategy to pain management. As originally described, the ladder has three rungs.

In our audit 23 patients were in the category of severe obesity i.e. BMI 30- 35 kg/m². Fifteen patients were morbidly obese i.e. BMI > 35 till 50 kg/m². Patients with morbid obesity benefit from a multimodal approach to pain therapy that involves non-opioid adjuncts with or without the concomitant use of regional anaesthesia. Common sense mandates that any opioid-sparing modality should be desirable. Morbidly obese patients require early mobilization to prevent deep venous thrombosis and respiratory problems. This can be achieved with adequate analgesia.

Patients who had emergency caesareans are high risk patients as the surgery is usually performed out of hours and patients have been laboring for some duration and already in pain in the preoperative status. These patients require adequate preemptive analgesia. The elective caesareans section patients numbered 40, they are mentally more prepared to cope with pain. Duration of surgery is important as prolonged surgery with extensive tissue handling causes more injury, more inflammation and more pain. Usually the surgeries that are of a longer duration are complicated surgeries as well.

Regional techniques of anaesthesia can block or reduce pain anywhere from several hours to several days, depending on the technique that is used. Preemptive pain management may reduce subsequent pain in the days to weeks following surgery. Greater pain control has the potential to allow for.
Diclofenac [NSAID], COX 2 inhibitors and paracetamol as effective but requires frequent dosage. Addition of Morphine in small doses when given intravenously is very analgesic as it lowers the threshold for seizures. Medication. Pethidine [Meperidine] is not the drug of choice intravenous route to avoid pain due to intramuscular analgesics are used it is better to give them by the pain received opioids I/M. It is advisable that if parental post analgesia pain score. Moreover patients with moderate pain received opioids I/M. It is advisable that if parental analgesics are used it is better to give them by the intravenous route to avoid pain due to intramuscular medication. Pethidine [Meperidine] is not the drug of choice as analgesic as it lowers the threshold for seizures. Morphine in small doses when given intravenously is very effective but requires frequent dosage. Addition of Diclofenac [NSAID], COX 2 inhibitors and paracetamol as adjuncts to opioids reduce their dosage and therefore the side effects. Patient controlled analgesia is extremely effective and the patient feels in control of her pain medication.

Keeping the WHO criteria for 3 step pain relief we have introduced a guideline in our Hospital for uniformity of care in analgesia in post operative patients. Patients are encouraged and counselled to take regional anesthesia. Local infiltration of the cesarean section wound with lignocaine in cases of general anesthesia is advised. Inj Morphine in doses of 2.5 mg to 5 mg slow intravenous every 4 to 6 hours is used for pain relief for pain scores 6-10. While COX 2 inhibitors, NSAIDS and paracetamol are used by the parenteral, oral and rectal routes for pain scores of 1-5.

Conclusions
All women undergoing cesarean section should have a clear plan of pain relief documented in their post operative notes according to the Cesarean section Postoperative analgesia guideline in our hospital.

References
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