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REVIEW ARTICLE

PATIENT CENTERED APPROACH TO ACUTE POST-OPERATIVE PAIN MANAGEMENT

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Considerable advances have been made in recent years in the understanding and management of acute pain including postoperative pain [1,2]. Despite all this advancement, acute pain remains a challenge and is often inadequately treated, leading to suffering and dissatisfaction [2-4]. Brennan et al [5] have stated in a recent article: "under-treatment of pain is poor medical practice that results in many adverse effects and is an abrogation of a fundamental human right".

Pain is inadequately addressed due to a variety of reasons. These may include a combination of cultural, educational, religious, attitudinal, and logistical reasons and may differ from place to place. Inadequately treated pain may have physiological, psychological, economic and social adverse effects, and increases the burden on patients' families and the society [2,3]. If careful attention is given to this issue and honest efforts made, it could be within the capacity of healthcare systems in developed as well as developing countries to significantly improve the treatment of pain [5,6].

Pain varies widely between patients due to an interaction of a number of factors including environmental and genetic factors[5,7]. It is a very subjective and personal experience and must be defined and understood from the patient's perspective. To provide adequate pain relief the physicians must accept patients word when assessing his / her pain and make the management strategy accordingly, rather than making their own assumptions about the patient's pain. To improve the standard of postoperative pain management, acute pain management services (APMS) have been established in all major hospitals of the developed countries and are being gradually introduced in the developing world. These services make available protocols, guidelines and information brochures for smooth running and streamlining of services and to enhance patient and staff knowledge of pain management. However, it is important to remember that protocols and guidelines should have room for individualization. Guidelines should be tailored according to the needs of each patient:"one size does not fit all" [7]. Acute postoperative pain is anticipated, therefore every effort should be made for its adequate management and the strategy for postoperative pain management should be made preoperatively and discussed with the patient. A patient-centered approach to pain management takes in to account the age, gender, personality, weight and co-morbidities of each patient in addition to the surgical procedure being performed.

Assessment of pain

Accurate and repeated assessment of pain is necessary for effective and individualized pain management. The "patient" is the person feeling

the pain: his word should be taken and a management plan made accordingly. A standardized pain assessment method should be used throughout the hospital by both medical and nursing staff. This would avoid mis-communication and allow a smooth multi-team approach to management. The visual analogue scale (VAS) and numeric rating scale (NRS) for assessment of pain intensity are equally sensitive in assessing acute pain after surgery [8] and either one can be employed as the standard method. Careful assessment of pain and tailoring of the institutional guidelines according to each patient's need has the potential for better outcomes and increased satisfaction.

Patient-centered approach

A patient centered approach to acute pain management promises to bring improvement in the effectiveness of postoperative pain management. Better pain relief, in turn, has the potential to lead to early rehabilitation, increased patient satisfaction and a reduced chance of progression to chronic pain [2]. The institutional guidelines prepared by the acute pain management services are important in providing the framework for safe and effective pain management [9]. However, the general guidelines for perioperative pain management do not usually consider procedure-related differences in the efficacy of analgesic agents or suitability of a given analgesic technique. For the physician responsible for postoperative pain management, an evidence-based, procedure-specific guideline for perioperative pain management is therefore desirable [6]. PROSPECT is a public website which provides information and recommendations for evidence-based procedure-specific postoperative pain management [6,10].

There are some groups of patients in whom pain assessment and management may be more problematic and additional knowledge and effort is required for effective postoperative pain management. These include elderly patients, small children, opioid tolerant patients, patients with obstructive sleep apnoea, etc. Detailed description of acute pain management for each of these groups is beyond the scope of this article; however, important points to remember during postoperative pain management in these patient groups are being highlighted.

Elderly Patients:

In patients who do not have cognitive impairment, self-report on the NRS remains the most reliable method of assessment of pain [11]. On the other hand, in patients having communication problems, observation of physical behavior like restlessness, tense muscles, frowning, grimacing, groaning etc. helps in making an estimation of the severity of pain [9]. Studies have shown that there is a tendency for under-reporting of pain in elderly patients [12]. The physiological changes that occur with aging alter dose requirements and duration of most analgesic agents; hence titration is the gold standard in pain management: "start low and go slow" [11]. Multimodal analgesia should be employed to reduce opioid consumption and thus opioid-related side effects [9,11]. Elderly patients are at a greater risk of gastric and renal adverse effects of non-steroidal anti-inflammatory drugs (NSAIDs). Concurrent medications put these patients at a greater risk of drug interaction. Patient controlled analgesia (PCA) can be used successfully in patients with reasonable cognitive ability [9]. Smaller bolus doses with no background infusion are recommended. When epidurals are employed, smaller volume of local anaesthetic solution is needed to cover the same number of dermatomes than in younger patients [13].

Paediatric Patients:

Pain assessment is difficult in the very young. Self report of pain is the best method of assessment but is impossible during infancy and early childhood [14].Visual analogue scales can be used reliably in children 8 years or more. Faces scales or colour-analogue scales can be used between 3 – 8 years of age. In children less than three years old and those with communication impairment or developmental delay, pain is assessed using observation of behavior and changes in physiological parameters [15].

Paracetamol and NSAIDs are safe and effective in the acute pain setting [14] and are useful components of multimodal analgesia in the postoperative setting. Oral and rectal routes are preferred, but in severe pain, parenteral routes may be employed. Opioids should be used when truly indicated, e.g. major surgery, sickle cell disease, cancer pain etc. PCA has been successfully used in children as

young as six years old [16]. Local anaesthetics are very useful for postoperative analgesia and may be used by subcutaneous infiltration and peripheral and central nerve blocks.

Opioid Tolerant Patients:
Tolerance is defined as the phenomenon whereby "chronic exposure to a drug diminishes its effects or creates the need for a higher dose to maintain this effect" [17]. Patients on long term opioid therapy may develop the need for progressively larger doses to maintain the same analgesic effect. These patients require much higher doses for acute pain management than a patient who does not take regular opioids. There is incomplete cross tolerance between opioids. In patients requiring high doses of opioids, with side effects and incomplete pain relief, another opioid (opioid rotation) in smaller doses may provide better analgesia with lesser side effects [18].

When managing acute pain in opioid tolerant patients the aims should be to provide effective analgesia and prevent the onset of withdrawal symptoms [19]. Pure opioid agonists are preferred in these patients and careful titration is required for effective pain relief. Close monitoring for effects and side effects is important. Multimodal analgesic regimes using non-opioids and regional analgesia are most beneficial. Ketamine in low dose infusions is useful and is said to block or reverse the tolerance [9]. PCA is a practical way by which the patient can self titrate the required doses. A continuous background infusion can be used to cover the chronic opioid requirement and larger than average bolus doses will often be required [9,19]. Adequate 24 hour monitoring should be employed by pain service and trained nurses.

Patients with Obstructive Sleep Apnoea
These patients have an increased risk of developing opioid induced respiratory depression and hypoxia [9]. Several case reports of serious life threatening respiratory depression have been published following the administration of opioids in these patients [19]. Increasing sedation, as opposed to a decreasing respiratory rate, has been described as the best early indicator of respiratory depression [20]. Careful titration of opioid doses is essential. Supplemental oxygen should be given to these patients when opioids are being used. Multimodal analgesia, including regional analgesic techniques and non-opioid analgesics should be employed so as to reduce the amount of opioids required. Close monitoring by acute pain team and nurses is mandatory. When PCA is being used, avoid background infusion as it is known to increase the risk of respiratory depression, especially in patients who have not used opioids before [19]. Close monitoring of the level of sedation is also very important.

Conclusion
There is large inter-patient variation in pain perception and analgesic requirements, especially in the amount of opioid required for effective analgesia in the postoperative period. It is important to titrate the dose to effect for each patient. For smooth services, organizational and economic factors must be considered when planning acute pain management and protocols and guidelines made accordingly. However, protocols and guidelines should have room for individualization. All existing pain remedies have side effects. The main problem arises when physicians are more afraid of the side effects related to the treatment than the pain itself. For adequate pain relief it is important to keep a balance between the risks and benefits of analgesic techniques and to employ multimodal techniques, using higher doses of the agents that are safer for the patient and lesser doses of not-so-safe drugs. Effective pain management with a careful patient-centered approach has the potential for early rehabilitation, better patient satisfaction and a reduced chance of progression to chronic pain [1,2].

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