Balanced analgesia: a prerequisite for optimal recovery

Treatment of postoperative pain is provided for humanitarian reasons and to reduce nociception-induced responses which may adversely influence organ function and contribute to morbidity. Despite tremendous progress in our understanding of pain physiology and increased attention from professional and government agencies, clinical surveys continue to indicate that routine pain treatment is unsatisfactory. The surgeon is often faced with questions of choice of analgesic treatment, risk of side-effects and degree of surveillance, and cost effectiveness. Although awareness and measurement of pain, education and increased use of simple, well established treatment regimens are the key factors in the general improvement of postoperative pain management, patients in severe pain with a high risk of adverse outcome may benefit from a more ‘high-tech’ analgesic programme. Such patients may also require increased attention to integrate pain relief into their postoperative rehabilitation.

The concept of balanced analgesia may be explained as follows. Optimal pain relief allowing normal function cannot be achieved by any single drug or method without major strains on equipment, surveillance systems or significant side-effects. The rationale for multimodal or balanced analgesia is therefore to provide sufficient pain relief through additive or synergistic effects, using different analgesics, with a concomitant reduction of side-effects owing to the resulting lower doses of individual drugs and differences in side-effect profiles. Over the past decade many studies have supported the concept of balanced analgesia, with improved pain relief during cough and movement using epidural local anaesthetic–opioid regimens in major procedures, and opioid–non-steroidal anti-inflammatory drug (NSAID) combinations in minor or intermediate procedures. Concomitantly, data have demonstrated continuous epidural balanced analgesia to be safe following major surgery when provided in the surgical ward under the supervision of an acute pain service. Furthermore, NSAIDs, with or without opioids, are safe, although their opioid-sparing benefits, leading to less sedation, nausea, vomiting, ileus and respiratory suppression, are less well established.

Despite extensive data demonstrating the beneficial physiological effects of efficient analgesia, the effect on postoperative morbidity is still debatable. Analgesic therapy with opioids, systemically or by epidural, has only minor effects on the surgical stress response and organ dysfunction; this is also the case for NSAIDs. In contrast, central neural blockade with local anaesthetics (spinal or epidural analgesia) has a profound inhibitory effect on the catabolic stress response and improves cardiac pulmonary and gastrointestinal function. In addition, intraoperative blood loss and thromboembolic complications may be reduced in lower body procedures but, despite an associated improvement in pulmonary and cardiac function, such reduction of morbidity has not been a consistent finding in major (upper) abdominal and thoracic procedures. Neither has the well documented reduction in postoperative ileus by use of continuous epidural local anaesthetics or local anaesthetic–opioid combinations translated into a significant improvement in outcome, and hospital stay has not been reduced. These unexpected and disappointing findings may be explained by the lack of integration of effective analgesia with active rehabilitation.

In the future, surgeons should be aware that balanced analgesia, either using low-cost combinations of conventional analgesics or a higher level of technology with epidural regimens, may improve pain relief. Balanced analgesia should, therefore, be used whenever reasonably possible. Low-dose epidural combination regimens after major surgery seem safe to use on surgical wards, but such treatment should be within the remit of an acute pain service with the assistance of appropriate anaesthetic expertise. Surgeons should be encouraged to increase their interprofessional collaboration, thereby enhancing progress and improvement in analgesia and postoperative outcome. Combinations involving paracetamol, \(\alpha_2\)-adrenergic agonists, newer slow-release long-acting local anaesthetics for
incisional use, ketamine and other drugs capable of reducing the postoperative neuroplastic response and increased pain sensitivity should be investigated. In addition, anti-inflammatory agents acting at the peripheral level (surgical site), such as new opioids, leukotriene inhibitors, glucocorticoids, substance P and bradykinin antagonists, need careful scrutiny. However, one of the most important future aspects for surgeons is an increased understanding of the pathophysiological role of pain and effective analgesia on postoperative morbidity. In this context it is essential to realize that single modality techniques or drug regimens cannot significantly reduce postoperative morbidity and mortality rates. On the other hand, multimodal intervention, with integration of effective analgesia in an enforced rehabilitation programme, may lead to a worthwhile reduction in postoperative morbidity, hospital stay and convalescence.

In summary, postoperative pain relief continues to demand our awareness. All who care for postoperative patients should be fully aware of the benefits of balanced analgesia regimens. Increasing collaboration of surgeons with anaesthetists should support the establishment of acute pain services and subsequently integrate effective balanced analgesia into multimodal rehabilitation programmes. Such efforts may be expected to lead to improved quality of care for our patients, with less pain and reduced morbidity leading to cost efficiency.

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