Battlefield Analgesia: An Advanced Approach

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SUMMARY: We present an advanced battlefield analgesia protocol that is designed to provide the maximum benefit for the greatest number of patients using the minimum of resources. During the development we considered logistics, drug pharmacology and safety, aetiology of the pain and the experience of the expected administrator. Analgesia is only considered after the “ABCD” criteria of the Primary Survey have been satisfied. The analgesics administered range from enteral non-opioids through to intravenous opioids based dynamically upon the Visual Analogue Score (VAS). We suggest this protocol could be used by healthcare workers who may not have been trained in acute pain management but are called to administer analgesia to the serviceman in pain.

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Naloxone protocol: Dilute 400 micrograms of naloxone into 4 ml with normal saline. Give 1ml iv every minute until respiratory rate >8 / minute or the sedation score is alert or verbally responsive
NB: Further doses may be needed due to the short half life of naloxone compared to morphine.

Fig 1
meet the criteria of ABCD are likely to be treated by doctors who can then administer titrated intravenous opioids. This may avoid the potential problem of intramuscular injections in a shocked patient.

2. The flow chart has all the ‘NO’ replies going horizontally and the ‘YES’ going vertically.

3. The advanced analgesia protocol begins when the patients are able to complain of pain.

4. The cause of the pain may not always be initially obvious, and servicemen who had previously been well controlled may become worse. We have therefore included a box to ensure that other diagnoses such as infection, compartment syndrome, haematoma and muscle cramps / stiffness are considered. Some diagnoses are often missed so it is important to check the mechanism of injury to exclude specific commonly occurring conditions. For example, when there is skeletal injury, surrounding soft tissues, visceras or neurovascular tissue may be involved. Missed diagnoses during the secondary survey are more common in the unconscious patient with severe head injuries and those with blunt trauma to the chest. Medical causes of pain such as myocardial infarction, pleurisy, post-herpetic neuralgia, acute low-back pain, gout and renal / biliary colic can also be overlooked.

5. The Visual Analogue Score (VAS) is based on an eleven point scale from 0 to 10 where 0 is no pain and 10 is the worst possible pain imaginable by the given patient. It is, therefore, a subjective experience. We have loosely based the analgesic therapy on the severity of the pain in three groups to reflect an analgesic ladder starting from oral analgesics at one end to titrated intravenous opioids at the other. Since the VAS scale is a continuum, the final choice will depend on the trend of serial VAS observations: (is the pain getting better or worse?), and whether the oral route is feasible. The choice of therapy is meant to be dynamic and reflect the changes in pain severity. For example, if a patient has a VAS score of 9 and is given intravenous opioid titrated to response and his next score is 3; it may be more appropriate to use an intramuscular or subcutaneous opioid rather than oral analgesics. If the oral route is not possible, and the pain score is in the lower range it would be preferable to use an intramuscular or subcutaneous opioid.

6. Enteral medication should be given regularly if possible, by the clock, to maintain a sustained-analgesic effect.

7. Opioids are equally effective when given intramuscularly or subcutaneously (3); we prefer the latter as it is less painful for the patient and repeated doses may be given through an indwelling-subcutaneous cannula.

8. Provided there is autonomic homeostasis (particularly intravascular volume) and that the urine output is at least greater than 0.5 ml/kg/hr then consideration should be given to the co-administration of a non-steroidal anti-inflammatory drug such as diclofenac or ketorolac.

9. We have included an anti-emetic in the advanced analgesic protocol because of the increased likelihood of nausea and vomiting after the administration of opioids. We have restricted the choice to drugs which are commonly available and listed them alphabetically since we feel that each drug may have advantages over the others in particular cases. The ultimate choice, therefore, rests with the administrator. If one agent is ineffective, we suggest checking the cause of the vomiting following which an alternative anti-emetic may be used.

10. The naloxone protocol is an extra safety-feature. The opioid antidote is titrated intravenously to a level that ensures a respiratory rate of at least 8 breaths per minute or a sedation score or verbally responsive. By careful titration we aim to reverse overdosage whilst preserving as much analgesia as possible. Since the plasma half life of naloxone (60 min.) is less than that of morphine (150-180 min.) or pethidine (180 min.) (4) it is important to be aware of the possible need for further doses of naloxone.

Conclusion

Effective analgesia on the battlefield attenuates the adverse pathophysiological responses to pain, aids evacuation and maintains morale. We have previously presented an algorithm to improve the safety and efficacy of self-administered, opioid-based analgesia by the serviceman prior to arrival at a medical facility (1,2). We have now expanded the protocol to assist those healthcare workers who may not have been trained in acute pain management but are called to administer analgesia to the serviceman in pain.

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REFERENCES


