Thoracotomy without post op analgesics in a patient with remote Traumatic Brain Injury [TBI] - A Case Report

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Introduction:
Variations in pain sensitivity, analgesic requirement and response and related adverse effects are observed daily in clinical practice and research. These are modulated by a combination of genetic and environmental factors and other factors such as age, gender, race, ethnicity, education, mood, and drug choice. We present a case in which a patient underwent thoracotomy and required nil post op analgesics including acetaminophen, NSAIDS or opioids.

Methods:
Case:
A 69 year old male with known TBI was referred to our hospital after he was found to be hypoxic and febrile to 101.5F at a skilled nursing facility. Patient was hemodynamically stable; work up revealed left lower lobe pneumonia with abscesses and a complex loculated effusion with marked leukocytosis and thrombocytosis. Patient was started on broad spectrum antibiotics and underwent left thoracotomy with drainage of empyema and total decortication. Two 32 Fr chest tubes and a T7-T8 epidural were placed at the end of the procedure. Patient became hypotensive after test dose [4 ml of 0.25% bupivacaine + 0.5 mg hydromorphone] requiring overnight admission in ICU where phenylephrine was quickly weaned off. In the post op period, patient reported zero pain on a standard Numeric Pain Scale to the point that he did not require any analgesics at all. Epidural was thus removed without ever starting to minimize risk of infection. Chest tubes were removed on POD 3 and patient was discharged on POD 7 on oral antibiotics. He continues to do well on follow up.

Results/Discussion:
Chronic pain, especially headaches, is a common complication of TBI, even after minor injuries in both children and adults. While on one hand patients with TBI are more likely to have pain after the injury; patients with past pain from all causes exhibit higher pain thresholds. Chronic pain patients typically exhibit higher than normal thresholds for various types of pain in experimental models. Dar et al have shown that soldiers who had severe injury exhibited both higher threshold and higher tolerance to thermal pain when compared to those lightly injured. Though diffuse noxious inhibitory control [DNIC] model may explain lower pain thresholds in patients with residual pain, it is unclear for how long exactly DNIC may affect pain thresholds. Further our patient did not have any residual pain. Changes in pain sensitivity in such patients can be attributed to a cognitive change in anchor points for pain as a result of pain experienced in the past. Effect of past injury has been shown to be most marked on pain tolerance as compared to pain threshold. Previous experience with pain both
experimental and clinical, is capable of resetting anchors or comparison points so that new pain is judged differently as proposed by adaptation level model. This has been demonstrated in athletes who play contact sports and exhibit greater pain tolerance. We propose that our patient must have been in severe pain after his initial insult which reset his pain threshold, explaining his lack of pain perception and hence analgesic requirement after a surgery that is considered to be one of the most painful surgical procedures.

To our knowledge, this is the first case report of patient having undergone a thoracotomy without needing any kind of analgesics.

Conclusion:

Due to complex nature of pain and its modulators, understanding the variable factors and complexities behind individual pain perception is paramount to proper evaluation and treatment of individual patient.