

# Paracetamol or nonsteroidal anti-inflammatory drugs or combination of both analgesics in acute post-trauma pain: a randomized controlled trial

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## Abstract

**Objectives:** Non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen (also called paracetamol) are the most frequent analgesics used to relieve post-trauma pain in the emergency department. However, the utility of combining both treatments is still controversial. We sought to explore the benefits of combining a NSAID with acetaminophen compared to acetaminophen alone, or NSAID alone, in the treatment of post-traumatic pain of the extremity after discharge from the emergency department (ED).

**Methods:** This is a prospective, randomized controlled trial, carried out in a single ED from March 2017 to November 2018. The included patients were randomly assigned to receive paracetamol alone, or high-dose NSAID (piroxicam) alone, or a combination of paracetamol and high-dose NSAID for 7 days after ED discharge. The primary outcome was need for additional oral analgesics. Secondary outcomes included the change of the visual numeric scale (VNS) between ED discharge (VNS D0) and 7 days later (VNS D7), ED revisits for residual pain, side effects and patient satisfaction as assessed by a Likert satisfaction scale.

**Results:** The need for additional oral analgesics were comparable between paracetamol-NSAID combination group (9.8%) and paracetamol group (11.4%) ( $p=0.43$ ). ED readmission rate was also comparable between the two groups at 5.6% and 5.8% respectively ( $p=0.86$ ). In contrast, need for new analgesics and ED revisit rates were both more frequent in the high-dose NSAID group. Mean

VNS decrease on D7 compared to D0 was 66%, 63% and 67%, respectively in paracetamol group, NSAID and paracetamol-NSAID combination group ( $p=0.32$ ). Frequency of dissatisfaction was higher in NSAID group. Side effects were more frequent in NSAID and paracetamol-NSAID combination groups.

**Conclusion:** This study found that the combination of a high-dose NSAID with paracetamol does not increase the analgesic effect compared to paracetamol alone. We also found that paracetamol alone is superior to high-dose NSAID alone for post-traumatic extremity pain.

**Keywords:** acetaminophen; acute; analgesia; non-steroidal anti-inflammatory drug; pain; paracetamol; trauma; visual numeric scale.