Case Report

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Management of Troublesome Intrathecal Fentanyl Induced Pruritis

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Abstract

Combination of intra thecal local analgesic and opioid are commonly used for neuraxial blocks. This combination gives excellent intraoperative as well as postoperative analgesia. Pruritus is a troublesome side effect of intrathecal opioids. Sometimes it may be more unpleasant than pain itself. We experienced a case of severe pruritis evoked by intrathecal fentanyl in a patient with Intertrochanteric fracture (Rt) femur for ORIF. After 90 minutes of intrathecal administration of a combination of bupivacaine and fentanyl she began to complain of severe itching which was managed with Inj Hydrocortisone Succinate. After surgery patient was shifted to ward for close monitoring. General isedprurit is and tachypnoea recurred after 18 hours which responded only to naloxone infusion for 6 hrs. Therefore it is suggested that naloxone is useful to reverse the effect of fentanyl inducedpruritis.

Keywords: Fentanyl, Naloxone, Pruritis.

INTRODUCTION

Fentanyl is a commonly used adjunct of choice for neuraxial block because it gives excellent intraoperative and postoperative analgesia. We routinely use combination of bupivacaine and fentanyl for intrathecal administration for major orthopaedic surgeries. One patient complained of severe pruritis after intrathecal administration of fentanyl.[1] Intravenous Naloxone infusion[2] was used to reverse the pruritis caused by fentanyl. We have investigated the effect of naloxone to reverse the fentanyl inducedpruritis in a patient with intertrochanteric fracture (Rt) femur for ORIF.

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CASE

A 58 years old ASA-II female weight 62 kg a case of intertrochanteric fracture (Rt) femur posted for ORIF under sub-arachanoid block received 3 ml (15 mg bupivacaine) and 25 mcg fentanyl mixture for procedure and post operative pain relief. Spinal needle 25G quincke needle was used to give spinal anaesthesia in sitting position in mid line. After free flow of CSF, 0.5% bupivacaine (heavy) 3 ml and 25 mcg fentanyl was injected in the L3-L4 subarachnoid space. 90 minutes after sub arachanoid block patient began to complain of itching all over the body. Injection hydrocortisone succinate 200 mg IV was given. Patient maintained all the vitals within normal limit during the procedure and she was shifted to ward for close monitoring. Next day in the morning at 0300 hrs patient developed tachypnea (RR-35-40/min) and tachycardia (HR-140-160/min). Blood pressure was 146/96 mmHg and maintaining Spo2 at 92% with oxygen 8L/min. Patient complained of generalised pruritis without any rashes. Inspite of giving injections of hydrocortisone, avil and propofol, pruritis did not subside. In view of

continuing pruritis, infusion naloxone was started at rate of 0.5mcg/kg/hr. After 4 hours, patient was comfortable and maintaining all vitals within normal limit. Rest of the post operative period was uneventful and patient was highly satisfied with the relief of generalised pruritis.

DISCUSSION

The exact mechanism of neuraxial opioid induced pruritus is unclear. Many mechanisms have been postulated, but no single mechanism can explain allinstances.

Postulated Mechanisms Include:[3,4,5]

- The presence of "itch center" in the central nervoussystem
- Medullary dorsal horn activation and antagonism of inhibitory transmitters
- Modulation of the serotonergicpathway
- Theory linking pain andpruritus.

It appears pain and pruritus are transmitted by the same population of sensory neurons, namely small un-myelinated nerve fibers (C-fibers) and the release of prostaglandins (PGE1 and PGE2) enhance C-fiber transmission to the central nervous system, which potentiatespruritus.

Treatment of neuraxial opioid induced pruritus remains a challenge. It is often difficult to treat and is refractory to conventional antipruritic treatment. Several drugs have been tried with some evidence of efficacy. The pharmacological therapies including antihistamines, 5-HT3-receptor antagonists, opiate-antagonists, propofol, non-steroidal anti inflammatory drugs (NSAIDs), and droperidol have been studied.

The receptor μ is responsible for the modulation of pain and some side effects, in particular the pruritus. Moreover, MOR antagonist drugs should be the first line treatment for all opioid induced side effects.

Naloxone is a synthetic derivative of oxymorphone, it antagonizes the pharmacologic effects of opioid analgesics. It competitively antagonizes all opioid receptor sites, including the μ, κ, and δ sites. Naloxone has no opioid effects. The onset of effect is typically within two minutes after i.v. administration and two to five minutes after administration by subcutaneous, intramuscular, and other parenteral routes. Naloxone is poorly absorbed from the gastrointestinal tract and has a relatively short half-life, approximately one hour.

We have used infusion of naloxone at 0.25 to 1 mcg/ kg / h is the most efficient for controlling pruritis.

This case report highlights that low dose of intravenous naloxone is very effective in reversing the pruritis due to intrathecal administration of fentanyl without affecting the analgesia.[6,7]

CONCLUSION

A large variety of drugs has been evaluated in the treatment of fentanyl induced pruritus. Among them, many drugs are including antihistamines, 5-HT3-receptor antagonists, opiate antagonist, propofol, non steroidal anti inflammatory drugs (NSAIDs), and droperidol. In conclusion, naloxone is an effectively therapeutic strategy to prevent opioid induced side effects, such as pruritus in low dose without affecting theanalgesia.

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