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CE - LETTER TO THE EDITOR

Intranasal sufentanil given in the emergency department triage zone for severe acute traumatic pain: a randomized double-blind controlled trail—reply

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Dear Editor,

We appreciate the comments by Corcostegui et al. [1] on our article [2] showing the impact of a single dose of intranasal (IN) sufentanil on the management of severe traumatic pain in the emergency department (ED), and read with great interest their use of this non-invasive analgesia in the extreme setting of tactical medicine. In every situation where intravenous (IV) access is time consuming, challenging or impossible, an efficient and safe alternative route of administration is indeed detrimental. Time is crucial during emergency medical support in police operations or armed conflicts, but safe and potent management of traumatic pain is likewise essential, despite a very unbalanced caregiver–patient ratio. Overcrowding can also be a difficult situation, where ED providers may be too busy to treat early and efficiently each severely painful patient [3], leaving room for delayed and possibly insufficient pain control (oligoanalgesia).

By this way, we totally agree with Corcostegui et al. [1]: emergency caregivers in such problematic situations need reliable, easy, inexpensive and potent alternatives to IV analgesia. In this context, morphine nebulization may be an interesting option, with a short time to analgesia and a good safety profile [4]. But two issues limit its use in difficult settings: it needs a gas flow with a tank and/or a nebulizer, and medication delivery may be unpredictably variable, depending on the patient's minute ventilation. For moderate pain treatment, the same issues can be formulated about nitrous oxide, but not for methoxyflurane. In its small but iconic 'green whistle' packaging, methoxyflurane is indeed very fast, light and simple, explaining why it has been used in Australia since decades. In this pioneer country, intranasal route of administration has also been extensively studied, mostly in pediatric EDs, and IN fentanyl delivered with a simple and cheap mucosal-atomization device is now considered the biggest change in acute pediatric pain management.

For adult body-weights and severe pain, IN sufentanil at doses between 0.4 and 0.6 µg/kg is probably the best option as a sole analgesic agent: its low volume of administration (usually less than 0.5 ml per nostril), high bioavailability and short time to analgesia are advantageous. And if the level of analgesia obtained is not sufficient, titration every 15 min can moreover be used. The security profile of IN sufentanil is also a positive point. In our study [2], because of the double blind and to begin as soon as possible the pain management of patients in the control group (who received an IN placebo in triage zone), we could not use a security delay between IN administration in triage zone and the beginning of IV multimodal analgesia in ED room. Therefore, patients in active group may have been initially 'over treated', as they may have received titrated IV morphine (if pain score still > 5/10 at the time of IV line placement) before the maximum efficacy of IN sufentanil given earlier in triage zone. Despite this issue, on the 144 participants of our trial [2], only 2 (one in each study group) required temporary low-dose oxygen therapy. In real-life setting, emergency caregivers would respect a pharmacokinetic-based security period between IN sufentanil administration and subsequent (if needed) reinjections, so the rate of adverse events would possibly be lower.

Another option described by Corcostegui et al. [1] would be to use IN ketamine, for its good respiratory security profile. Due to its limited bioavailability, we agree that IN ketamine as a sole analgesic agent would probably require reinjections and may induce problematic psychological disorders in extreme situations such as tactical medicine.

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In civil practice, this adverse event is, however, rare, self-limited and finally not disturbing [5].

Probably, the most positive aspect of ketamine is its particular pharmacology (*N*-methyl-D-aspartate NMDA receptor noncompetitive antagonism) and its capacity to potentiate opioids while limiting their adverse events. To enhance patient safety while maintaining a high level of comfort, the combination of opioids (by any route of administration) and IN ketamine may, therefore, be very interesting in various settings, and should be explored.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Statement of human and animal rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent All participants provided informed consent prior to their participation.

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