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Escalating dose protocol for remifentanil patient-controlled analgesia in labour: an audit of outcomes and patient satisfaction

R Malbon-Harris, K Maclennan, S Davies
St Mary's Hospital, Manchester

Introduction

Remifentanil has been shown to be superior to IM pethidine for labour analgesia. [1] However, concerns persist about maternal respiratory depression. [2] Could a lower dose of remifentanil patient-controlled analgesia (PCA) provide satisfactory analgesia, while reducing the risk of side effects such as respiratory depression? An escalating dose protocol for remifentanil PCA was introduced at our unit. Women start on a 20µg PCA bolus, which can be increased to a 40µg bolus if required. Quantitative data collection was used to assess the effectiveness of this protocol and gauge patient satisfaction.

Outcomes

These were taken from the RESPITE trial: [1]

- Rate of conversion to epidural analgesia should be equal to or less than 19%.
- Patient satisfaction should be equal to or greater than 86%.

Methods

- Electronic notes reviewed from 1st - 31st March 2021.
- Women unable to have epidural excluded from conversion data.
- Satisfaction assessed using a four-point Likert scale.
- Pain relief rated complete or acceptable = satisfactory.
- Pain relief rated unsatisfactory or having no effect = unsatisfactory.



57% stayed on lower 20µg remifentanil PCA bolus



13% converted to epidural



92% satisfied with analgesia from remifentanil PCA



88% using remifentanil PCA due to patient choice



4% experienced oxygen saturations < 94%

References

1. Wilson M, MacArthur C, Hewitt C, et al. Intravenous remifentanil patient-controlled analgesia versus intramuscular pethidine for pain relief in labour (RESPITE): an open-label, multicentre, randomised controlled trial. Lancet. 2018; 392: 662-672.
2. Weibel S, Jelting Y, Afshari A, et al. Patient-controlled analgesia with remifentanil versus alternative parenteral methods for pain management in labour. Cochrane Database of Systematic Reviews. 2017; 4: 1465-1858.

Results

- 68 women used remifentanil PCA for labour analgesia.
- 57% (39/68) remained on initial 20µg PCA bolus dose.
- 13% (8/61) converted to epidural analgesia.
- 92% (23/25) satisfied with analgesia.
- 88% (14/16) who remained on 20µg bolus satisfied.
- 100% (9/9) of those on 40µg bolus satisfied.
- 88% of women using remifentanil PCA due to patient choice.
- 4% (3/68) experienced oxygen saturation <94%.

Discussion

- Escalating dose remifentanil PCA protocol provides satisfactory labour analgesia with low incidence of side effects.
- Remifentanil PCA popular in our unit – use extends beyond rescue analgesia when epidural has failed.
- Compared with RESPITE study: [1]
  - Rate of conversion to epidural analgesia lower (13% vs. 19%)
  - Patient satisfaction higher (92% vs. 86%)
  - Frequency of oxygen saturation <94% lower (4% vs. 14%)
- High satisfaction observed even with the 20µg dose.
- Other units could consider using a similar two-dose protocol to improve the satisfaction and safety of remifentanil PCA in labour.
- Further work is ongoing collecting qualitative data on our remifentanil protocol in order to produce a patient information video.