

Evaluation of the physical stability of ketorolac, tramadol and alizapride mixed with paracetamol 100 ml - infusion



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Introduction

- In post-operative period, multi-modal analgesia is the gold standard by the complementarity of the modes of action of the different molecules, requiring the combination of several analgesics.
- Moreover, the overall volume of perfusion can be reduced by mixing different drugs in the same infusion bottle.
- The aim of this study is to investigate the physical stability of ketorolac, tramadol and alizapride mixed with paracetamol 100 ml-infusion and stored at room temperature during 48 hours.

Méthode

- Five vials of paracetamol 1 g / 100 ml each containing 20 mg of ketorolac, 100 mg of tramadol and 50 mg of alizapride were prepared.
- Immediately after the preparation (hour 0) and after 1 h, 4 h, 8 h, 24h and 48 h, visual inspection, spectrophotometric and pH measurements were performed.
- Just after the preparation (hour 0) and after 1, 4, 8, 24 and 48 hours of storage, 2 ml of solution were withdrawn from each bottle and placed in glass tubes
- After each withdrawal, all specimens were visually inspected in front of a black and of a white background. Moreover, the lower parts of centrifuged aliquot from each solution were examined microscopically.
- The pH of each solution was measured with glass electrode PH-meter (Inolab level 1, WTW Weilhem, Germany with biotrode electrode, Hamilton, Bonaduz, Switzerland)
- Spectrophotometric measurements (Genesys 10 series, New-York, USA) were performed at three wavelengths (350, 410 and 550 nm) to exclude the apparition of turbidity.



Résultats

- During the 48 h period, no change in color or appearance of opacity, turbidity or precipitation was observed.
- The microscopic analysis did not detect any aggregate and the spectrophotometric measurements were not modified. The pH did not evolve significantly.

Conclusions

- Accordingly, the mixture of 20 mg of ketorolac, 100 mg of tramadol and 50 mg of alizapride in a 1 g / 100 ml bottle of paracetamol is physically stable for 48 hours.
- These results allow us to consider a study of chemical stability by high-performance liquid chromatography (HPLC).

