



Question: What is the opioid conversion between tramadol and morphine?

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Summary

- There is very limited information to support the conversion ratios between tramadol and morphine. It would be prudent to convert using a conservative potency ratio and consider the clinical condition of the patient when converting a patient from tramadol to morphine.
- A potency ratio of oral morphine to oral tramadol has been reported to be between 1:4 and 1:10. Therefore, a total daily dose of 400mg of oral tramadol is equivalent to 40mg-100mg of oral morphine.
- The potency ratio of parenteral morphine to parenteral tramadol is generally regarded to be 1:10. Therefore, a dose of 100mg of parenteral tramadol is equivalent to 10mg of parenteral morphine.

Information

- *The Summary of Product Characteristics* for Zydol® 50mg capsules and Zydol® 100 mg/2 ml solution for injection states that the potency of tramadol is reported to be 1/10 (one tenth) to 1/6 (one sixth) that of morphine.^{1,2}
- *The British National Formulary (BNF)* advises that tramadol 100mg orally is approximately equivalent to morphine 10mg orally (i.e. the potency of oral tramadol is 1/10 (one tenth) that of oral morphine).³

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- *The Palliative Care Formulary* recommends that tramadol is generally regarded as one tenth as potent as morphine when given parenterally (e.g. tramadol 100mg is equivalent to morphine 10mg). In fact, various pre- and postoperative studies give a range of potency ratios, from 1:11–1:19, suggesting that the figure of 1:10 is more of a ‘convenient to remember’ ratio than a scientifically precise one. Some of the postoperative studies also suggest that, to produce adequate analgesia, tramadol needs to be administered more frequently than morphine over the first few hours (by IV PCA), after which doses become less frequent. The need for the equivalent of a loading dose with tramadol may reflect its different mode of action from morphine. A delayed maximum effect has also been reported in an randomised controlled trial (RCT) of oral tramadol and morphine.⁴ By mouth, compared with morphine, RCTs indicate a potency ratio of 1:5 and 1:4 respectively (i.e. tramadol 100mg PO=morphine 20–25mg PO). However, extensive clinical experience has led many physicians to regard the potency ratio for PO tramadol and PO morphine to be 1:10 (i.e. tramadol 100mg PO=morphine 10mg PO). In the PO opioid dose conversion ratios table a tramadol: morphine ration of 10:1 is recommended.⁴
- *Micromedex* advises that the analgesic potency of tramadol is estimated to be one-tenth that of morphine.⁵

References

- 1) Summary of Product Characteristics Zydol 50mg caps. Available from www.hpra.ie. Accessed on the 12/04/2017.
- 2) Summary of Product Characteristics Zydol 100 mg / 2 ml Solution for Injection. Available from www.hpra.ie. Accessed on the 12/04/2017.
- 3) Monograph Prescribing in Palliative Care. British National Formulary. Available from www.medicinescomplete.com. Accessed on the 12/04/2017.
- 4) Monograph Tramadol. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 12/04/2017.
- 5) Monograph Tramadol. Micromedex. Available from <http://www.micromedexsolutions.com/>. Accessed on the 12/04/2017.