

# Tapentadol Versus Tramadol: A Narrative and Comparative Review of Their Pharmacological, Efficacy and Safety Profiles in Adult Patients

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## Abstract

We conducted a narrative review of the literature to compare the pharmacological, efficacy and safety profiles of tapentadol and tramadol, and to assess the clinical interest of tapentadol in adult patients. Tapentadol and tramadol share a mixed mechanism of action, including both mu-agonist and monoaminergic properties. Tapentadol is approximately two to three times more potent than tramadol and two to three times less potent than morphine. It has no identified analgesically active metabolite and is not significantly metabolised by cytochrome P450 enzymes, thus overcoming some limitations of tramadol, including the potential for pharmacokinetic drug-drug interactions and interindividual variability due to genetic polymorphisms of cytochrome P450 enzymes. The toxicity profiles of tramadol and tapentadol are similar; however tapentadol is likely to result in less exposure to serotonergic adverse effects (nausea, vomiting, hypoglycaemia) but cause more opioid adverse effects (constipation, respiratory depression, abuse) than tramadol. The safety of tapentadol in real-world conditions remains poorly documented, particularly in at-risk patient subgroups and also in the ability to assess the risk associated with its residual serotonergic activity (serotonin syndrome, seizures). Because of an earlier market introduction, more real-world safety data are available for tramadol, including data from at-risk patient subgroups. The level of evidence on the efficacy of both tramadol and tapentadol for the treatment of chronic pain is globally low. The trials published to date show overall that tapentadol does not provide a clinically significant analgesic improvement compared to existing treatments, for which the safety profile is much better known. In conclusion, tapentadol is not a first-line opioid but represents an additional analgesic in the therapeutic choices, which some patients may benefit from after careful examination of their clinical situation, co-morbidities and co-mediations.

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