

over the first 6 hours. Other studies corroborate this finding. Keeping the concept of pre-emptive analgesia in mind, we expected preoperative administration of analgesics to be more efficacious in relieving the pain than postoperative administration. Our results show that postoperative administration of tramadol appears to be more efficacious than preoperative administration, in terms of pain relief. Analgesic effect of tramadol begins within 1 hr and reaches a peak in approximately 2-3 hours (physician's Desk Reference, 1999) It is likely that the post extraction pain reaches a peak in the first 2-4 hours. Pharmacodynamics and pharmacokinetics of most administered drugs are time dependent. Therefore here, in the absence of severe pain, optimum use of tramadol has not been made. Opioid activity of tramadol is due to both low affinity binding of the parent compound and higher affinity binding of the O-demethylated metabolite to m opioid receptors. As it is extensively metabolized by a number of pathways the bio-availability of the active metabolite is high. Therefore it has a quick onset of action. Though tramadol was given preoperatively with the idea of preempting the expected pain, it appears that giving it before the procedure is too early to be of any benefit. This may be an explanation, why it is less effective when administered preoperatively than postoperatively, as the peak analgesic effect and the time of maximum pain after tooth extraction may not be coinciding with each other. This could also be a reflection of the inadequacy of the dose used preoperatively.

From our results showing that analgesic group required the rescue drug (ibuprofen 400 mg) less than the placebo group, we once again demonstrated that the pain following impacted tooth extraction is severe enough to require analgesics. Tramadol group require less rescue analgesic than the placebo group.

Looking at pre-emptive analgesia from the stand point of need for rescue, our study shows that preoperative tramadol did not appear to have sufficiently long lasting effects to be significantly different from preoperative placebo. As explained earlier, the analgesic effect of tramadol begins within 1 hours and reaches a peak in approximately 2-3 hours. In this study tramadol was administered half-an-hour before the procedure, hence the peak analgesic effect and the maximum pain produced by dental extraction might not be coinciding with each other when tramadol is administered preoperatively at the dose used in our study.

When postoperative placebo and tramadol were compared, tramadol was found to be more efficacious as indicated by the lower need for rescue in the analgesic groups. This result reinforces that sufficient residual pain remains despite adequate local anesthesia.

Tramadol being an opioid and nor-epinephrine modulator, more CNS related side effects as expected was found as 6 patients is tramadol

group had CNS related side effects and none in placebo group reported. Overall, the side effects reported by tramadol was significantly more than that reported by the placebo group. Tramadol's effects on the gastrointestinal tract is fairly minor and its CNS effects are more prominent. Some of the reported side effects include anxiety, confusion, euphoria, sleep disorders, visual disturbance and dependence.

Pain assessment using a verbal rating scale (VRS) was appropriate for this study. Jensen et al⁹ assessed the utility of 10 indices (including the verbal rating scale) in the subjective experience of acute pain. The results indicated that each of the measures of pain intensity is adequately valid. Jensen & Karoly¹⁰ have also said that because pain intensity is a relatively easy dimension of pain experience for patients to report, most self-report measures of pain intensity are strongly related to one another, and so can probably be used interchangeably in many situations.

CONCLUSION

This study demonstrated that tramadol is equally effective as traditional NSAID's in relieving pain in the first 6 hours after molar extraction and therefore can be tried in patients who are intolerant to NSAIDs. A firm conclusion regarding the time of intervention (i.e., pre-extraction post-extraction) for optimal pain control is a point for clarification and needs further analysis.

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