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Efficacy and Safety of Tapentadol Immediate Release Assessment in Treatment of Moderate to Severe Pain: A Systematic Review and Meta-Analysis

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Abstract

Objective: To assess the efficacy and safety of tapentadol IR for moderate to severe pain compared to oxycodone IR.

Methods: A search was carried out up to July 2015 for randomized controlled trials (RCTs) of tapentadol IR compared to placebo or oxycodone HCL IR 10 mg for moderate to severe pain. Studies were pooled by risk ratio (RR) and weighted mean differences (WMD) with 95% confidence interval (CI).

Results: Nine RCTs (n = 3,961) were analyzed. In this meta-analysis, tapentadol IR (50-, 75-, and 100-mg doses) showed significant improvements in moderate to severe pain relief on the sum of pain intensity difference over 48 hours (SPID 48) scores (P < 0.00001 or P = 0.01). No statistically significant difference among all three doses of tapentadol IR and oxycodone HCL IR 10 mg on both SPID 48 and total pain relief over 48 hours (TOTPAR 48) scores (all P > 0.05) was found. Compared with tapentadol IR 50 mg, tapentadol IR 75 mg demonstrated significant improvement in moderate to severe pain relief based on both SPID 48 and TOTPAR 48 scores (all P < 0.05). For total adverse events (AEs) incidence, tapentadol IR 50 and 75 mg were significantly lower than oxycodone HCL IR 10 mg. Incidence of nausea and constipation were significantly lower with either tapentadol IR 50 or 75 mg compared with oxycodone HCL IR 10 mg (all P < 0.05).

Conclusions: Tapentadol IR 75 mg might be an optimal dose for moderate to severe pain control with fewer side effects. All three doses of tapentadol IR could provide comparable efficacy to oxycodone HCL IR 10 mg.

Keywords: Moderate to Severe Pain; Systematic Review; Tapentadol Immediate Release.

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