ABSTRACT

Comparing the Effectiveness of Bisacodyl and PEG in Morphine –induced Constipation

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Morphine is an opioid to treat acute to chronic pain. Constipation often occurs in majority patients due to the influence of morphine in the enteric nervous system. Bisacodyl, a stimulant laxative, has been recommended as first line therapy to treat opioid induced constipation (OIC). Polyethylenglycol (PEG), an osmotic laxative, has been considered as an alternative to treat OIC. The objective of this study was to compare the effectiveness of bisacodyl and PEG 3350 with three parameters gastrointestinal (GI) transit, colonic beads expulsion and faecal water content. Twenty four mice received either morphine or normal saline intraperitoneally twice a day for 21 days. PEG 3350 or bisacodyl was given orally twice a day at day 15 until day 21.

The result showed that administration of morphine in morphine group decreased GI transit (22.33%), increased expulsion time (56.69 minutes) and decreased water content (9.12%) compared to normal saline group. There was significant difference in GI transit's percentage of morphine-bisacodyl group ($p \leq 0,05$) and morphine-PEG group ($p \leq 0,01$) compared to morphine group. In addition there was significant difference in PEG-morphine group ($p \leq 0.01$) compared to normal saline group. The colonic bead expulsion showed significant differences in bead expulsion time on day 20 in the morphine-bisacodyl group (8.29 min) and morphine-PEG 3350 (16.02 min) compared to morphine group (56.69 min). Furthermore, there was significant difference ($p \leq 0.01$) between morphine-bisacodyl group and morphine-PEG group. The faecal water content percentage showed that morphine group's water content (9,12%) was lower than morphine-bisacodyl group (49.13%) and morphine-PEG 3350 group (47,07%). This study concluded that oral bisacodyl and oral PEG 3350 are effective to treat OIC measured with GI transit, colonic bead expulsion and faecal water content. However, bisacodyl, 100 mg/kg was more effective than PEG 3350, 3 g/kg in term of colonic bead expulsion.

Keywords : bisacodyl, constipation, morphine, polyethylenglycol