The effect of Gabapentin premedication on postoperative pain management after abdominal hysterectomy

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Background and goal of study:

This prospective randomized, double-blind placebo-control study was designed to investigate if oral premedication with gabapentin, primarily an anticonvulsant drug that demonstrated also antihyperalgesic properties, could improve the postoperative pain control after abdominal hysterectomy via Pfannenstiell incision.

Materials and Methods:

Parameters evaluated during first 48h postoperatively: pain at rest and on coughing; total morphine consumption; length of pain-free interval; incidence of sedation and nausea/vomiting; patient satisfaction with analgesic regimen.

Fig. 5: The incidence of sedation

Fig. 6: The incidence of nausea/vomiting

The incidence of side-effects was significantly higher in group P as compared to group G, even these were minor and easily controllable. Thus, both sedation and nausea/vomiting being opioid-related side-effects, are closely linked to the morphine consumption and, consequently, predominantly observed in group P.

Conclusions:

Gabapentin premedication controls efficiently the acute pain, especially on coughing, decreases considerably morphine consumption by PCA and the incidence of correspondent side-effects, thus improving patient status and the quality of recovery during first 48h after abdominal hysterectomy.

References:

- Connie Y. Chang, Chaitanya K. Challa, Janki Shah, and Jean Daniel Eloy, Gabapentin in Acute Postoperative Pain Management, BioMed Research International, vol. 2014 (2014), article ID 631756
- Imani F, Rahimzadeh P., Gabapentinoids: gabapentin and pregabalin for postoperative pain management, Anesth Pain Med. 2012;2(2):52–3.

Results and discussions:

The two groups revealed no difference in demographics, anaesthesia, duration and technique of surgery.

Group	VAS at 1h	VAS at 2h	VAS at 4h	VAS at 8h	VAS at 24h	VAS at 48h
Group G	0.56+/-0.51	0.88+/-0.57	1.29+/-0.89	1.74+/-1.44	2.17+/-1.25	2.05+/-1.82
Group P	0.84+/-0.78	1.02+/-0.85	1.94+/-0.75	2.28+/-1.62	2.86+/-1.58	2.26+/-1.73
p	NS	NS	NS	NS	NS	NS

Fig.1: Evaluation of pain intensity at rest during study period (VAS)

Group	VAS at 1h	VAS at 2h	VAS at 4h	VAS at 8h	VAS at 24h	VAS at 48h
Group G	0.65+/-0.12	1.23+/-0.49	1.96+/-0.35	2.47+/-0.43	3.09+/-0.84	2.78+/-0.62
Group P	1.83+/-0.68	2.38+/-0.86	2.98+/-0.96	3.65+/-1.22	4.85+/-1.12	4.35+/-1.15
p	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Fig.2: Evaluation of pain intensity on coughing during study period (VAS)

According to our findings, no significant difference was detected between group G and placebo regarding pain intensity at rest, the improvement in pain scores due to gabapentin being modest. The analgesic efficiency of gabapentin appeared highly significant on coughing, since VAS scores were impressively less for group G versus group P.

The antinociceptive, antihyperalgesic and anti-inflammatory effects of gabapentin in states of surgically-induced acute tissue and nerve injury could be a pertinent explanation for this distribution.

Fig. 3: Total morphine consumption

Fig. 4: Duration of pain-free interval

Concerning total morphine consumption, a significant reduction in opioid requirement delivered by PCA was found in group G versus group P, explained by gabapentin morphine-sparing effect. Although the duration of pain-free interval was similar in our groups, the advantage of gabapentin premedication was highlighted by the quality of analgesia experienced by patients in group G compared to placebo, with lower VAS scores at all time intervals, mostly during coughing effort.

Patient satisfaction with pain management was significantly higher in group G, fact explained by a better pain control associated with minor side effects in patients with gabapentin premedication versus placebo.

Fig. 7: Evaluation of patient satisfaction with analgesic regimen (four point rating scale)