

Neuromuscular blockade, recovery and postoperative pain after laparoscopic-assisted vaginal hysterectomy with low-pressure pneumoperitoneum versus normal-pressure

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Background and Goal of Study: Laparoscopic assisted vaginal hysterectomy (LAVH) is often performed for older women. High pneumoperitoneum pressure can affect the patient's statement, while low pressure reduces visualization and lengthens the operation. The use of deep neuromuscular blockade (NMB) improves surgical conditions during a low-pressure pneumoperitoneum¹. The aim of our study was to determine the effect of pneumoperitoneum pressure on muscle relaxant consumption, recovery after laparoscopic intervention and early postoperative pain.

Materials and Methods: Having obtained the informed consents, 48 women (scheduled for LAVH) were randomized into 2 groups: LP (n=23) low-pressure pneumoperitoneum (8 mmHg) and NP (n=25) normal-pressure one (12 mmHg). NMB was established with atracurium. Episodes of alarm from the insufflator led to NMB was deepened. Pain was assessed on a visual analogue scale (VAS) in 1, 5 and 24h after surgery. Other endpoints were surgeons' satisfaction; and time to mobilization. Both groups were similar in relation to physical status (ASA II). Data are presented as mean±SD or % patients with parameters. Mann-Whitney U test was used for statistical analysis, *p<0.05 was considered as statistically significant for comparison between groups.

Table.

Indicators	Low-pressure (n=23)	Normal-pressure (n=25)	p
Duration of surgery (min)	120.±12.3	110.5±4.5	0.04
Extubation (min)	22.7±5.1	14.4±3.2	0.02
Atracurium (mg)	80.9±8.1	70.1±4.1	0.01
VAS-1h (mm)	18±7.4	22.7±6.5	0.04
VAS-5h (mm)	14.4±3.	20.3±2.5	0.001
VAS-24h (mm)	13.2±2.9	14.0±1.4	0.5
Ambulation (min)	300.2±134.02	320±116.6	0.04
Surgeons' satisfaction (%)	68	84	0.03
Episodes of alarm	18.4±2.4	9.9±1.4	0.001

Results and Discussion: As the duration of the operation in LP was longer, and extubation of patients was performed later than in NP (Table). Surgeons' satisfaction was 16% less in LP. The consumption of atracurium was 8.7% less in NP (p=0.06). Postoperative pain was significantly less in LP, both at 1 and 5 hour, and did not differ after 24 hours. Women started walking earlier after the operation in LP. Correlation were revealed between pressure of pneumoperitoneum and the VAS level after 1 hour (0.73, p=0.03) and 5 hours (0.65, p=0.04). Surgeons' satisfaction correlated with consumption of atracurium (0.68, p=0.04).

Conclusions: Low-pressure pneumoperitoneum was associated with increased muscle relaxants consumption and cuted surgeons' satisfaction. However it can reduce early postoperative pain and hasten mobilization.

References:

1. Madsen MV et al. Dan Med J. 2017;64(5): A5364.