SHORT COMMUNICATION

Intraabdominal pressure after rectal resections

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Abstract

The mean correlation curves of the intraabdominal pressure over time were evaluated by regression analysis (value 0.05) in both groups. The curves had a rising character in both groups, but in the control group the curve rose more steeply and reached a higher level than the curve of studied group. The onset of peristalsis, first flatus and stool took a shorter time in the studied group. ***(Tab. 1, Fig. 5, Ref. 5.)***
Key word: rectal resection, intraabdominal pressure, enteral nutrition, triluminal tube.

The aim of our reseach was to compare the correlation curves of the intraabdominal pressure (IAP) over time and to describe their characteristics in the two groups of patients after the elective low rectal resection or rectosigma resection. We tried to evaluate the hypothesis that the IAP curve increases in the first 48 hours after operation and correlates with bowel paralysis. The first group consisted of patients already operated on, who received an oligomer enteral nutrition immediately after the operation. The second (control) group consisted of patients operated on, who received the nutrition parenterally in the early post-operational period and later orally. We tried to evaluate the beneficial effect of early enteral nutrition on intraabdominal pressure and therefore faster regeneration of peristalsis, faster flatus and stool.

Methods

We have chosen rectal resection for the study because the diameter of anastomosis is exactly determined and bowel paralysis takes more time than other abdominal operations (1). Early enteral nutrition was given using nasojejunal tri-luminal tube-only in the studied group (2) (Fig. 1).

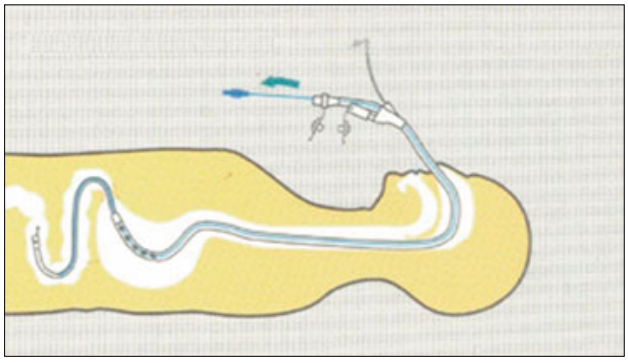

Fig. 1. Triluminal nasojejunal tube.

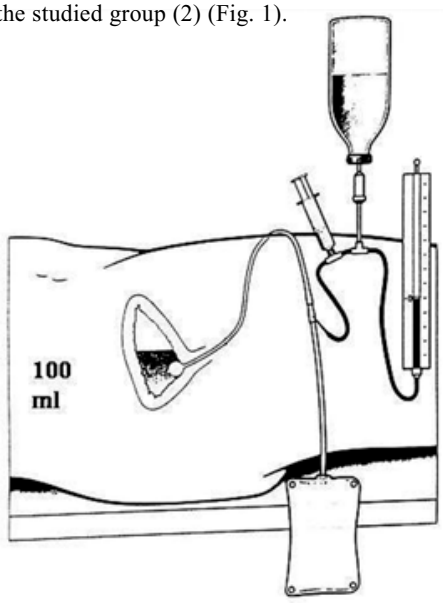

Fig. 2. The measurement of IAP.

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The work is supported by the Grant of Ministry of Health, Czech Republic, No. ND 7134-3.

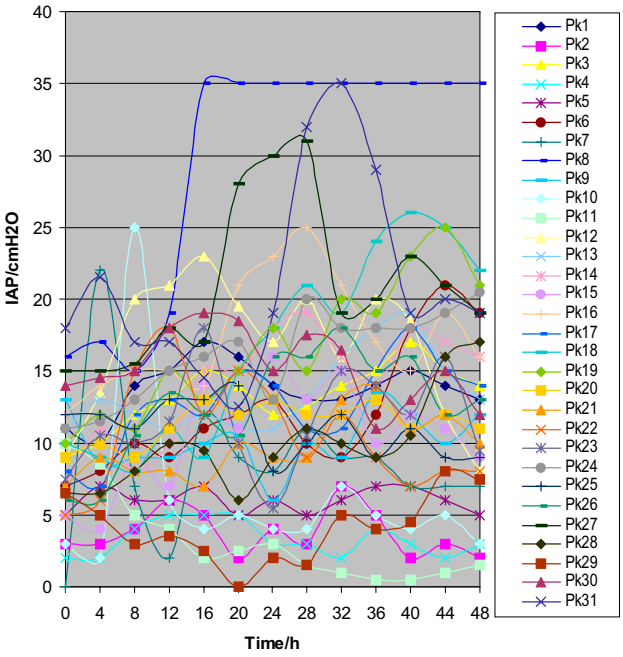

Fig. 3. Total time lines of IAP — control group.

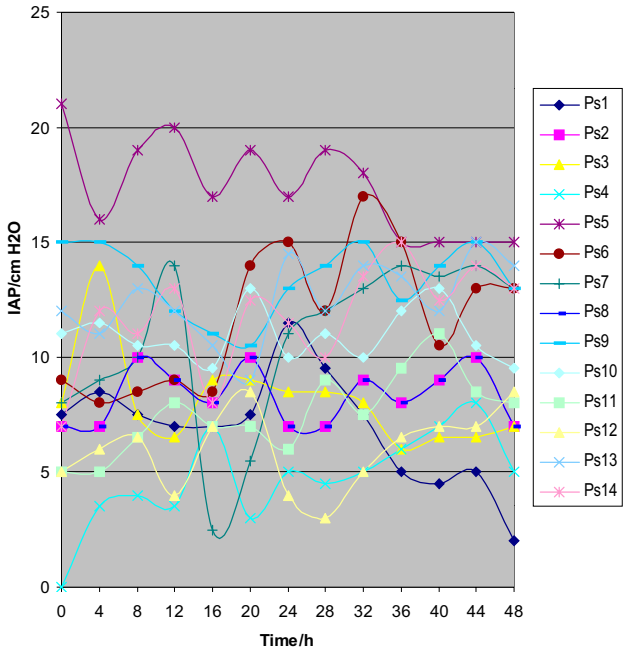

Fig. 4. Total time lines of IAP — observed group.

Intraabdominal pressure was measured by an indirect method i.e. measuring the pressure in the urinal bladder. Normal pressure is 3–12 cm H20 after intraabdominal operation. Increased intraabdominal pressure is 15–25 cmH_20 and value more than 25 cm is pathological (3, 4) (Fig. 2). The measurement was made in 4-hours intervals during the first 48 hours after operation (Figs 3 and 4). In both groups we eliminated factors increasing intraabdominal pressure (except contents of stomach and intestines) such as increased intrathoracic pressure, a large amount of peritoneal fluid, increased abdominal muscle tension and increased retroperitoneal pressure. Consequently had to exclude patients with artificial ventilation and retroperitoneal hematoma; the peritoneal cavity had to be drained well (5); pain must be killed to the 3rd–4th degree of visual analoque scales.

The secondary objectives were the characteristics of peristalsis, first flatus and stool. Than we calculated the number of patients with an increased intraabdominal pressure fifteen centimeters H_20 for at least eight hours in each group. This duration of increased intraabdominal pressure was estimated as a point of break from the normal postoperative bowel paralysis to the onset of paralytical ileus. This condition correlates with the increase of the abdominal wall; pain, nausea or vomitting; and adequate X-ray finding. The study was performed on fourteen patients in the studied group and thirty-one patients in the control group (Tab. 1). The obtained curves and calculations were statistically compared.

Tab. 1. Observed parameters in the group of patients.

Parameters	Control group	Studied group
Number of patients	31	14
Average age	66.3	66.4
Male	20	7
Female	11	7
Peristalsis average/days	2.45	1.07
Peristalsis median/days	2	1
Flatus average/days	3.48	2.21
Flatus median/days	4	2
Stool average/days	4.93	3.28
Stool median/ days	5	3
Body mass index average	26.11	26.15
IAP more than 15 cmH_2O at least for 8 hours/ percentage	58	7

Results

The mean correlation curves of the intraabdominal pressure over time were evaluated by regression analysis (value 0.05) in both groups. The curves had a rising character in both groups, but in the control group the curve rose more steeply and reached a higher level than the curve of studied group (Fig. 5). The onset of peristalsis, first flatus and stool took a shorter time in the studied group.

Only fourteen percent of patients in the studied group (compared with fiftyeight percent in the control group) had an increased intraabdominal pressure for at least eight hours. Statistical comparison using *t*-test (value 0.05) showed a significant difference.

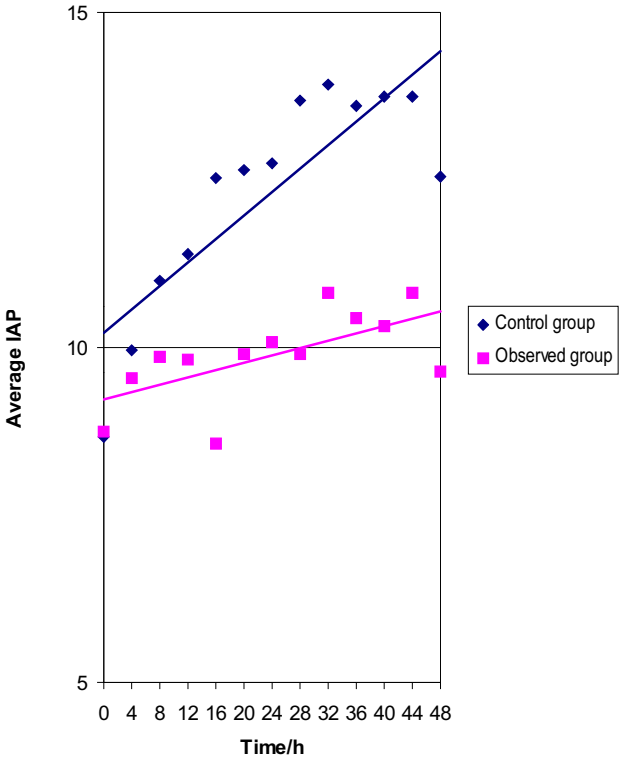

Fig. 5. Trend of average IAP.

We confirmed that early enteral nutritinon given by triluminal tube decreases the intraabdominal pressure by faster onset of peristalsis, first flatus and stool.

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Received August 25, 2004.
Accepted September 2, 2004.