



Effect of muscle relaxants on the abdominal pressure-volume relation

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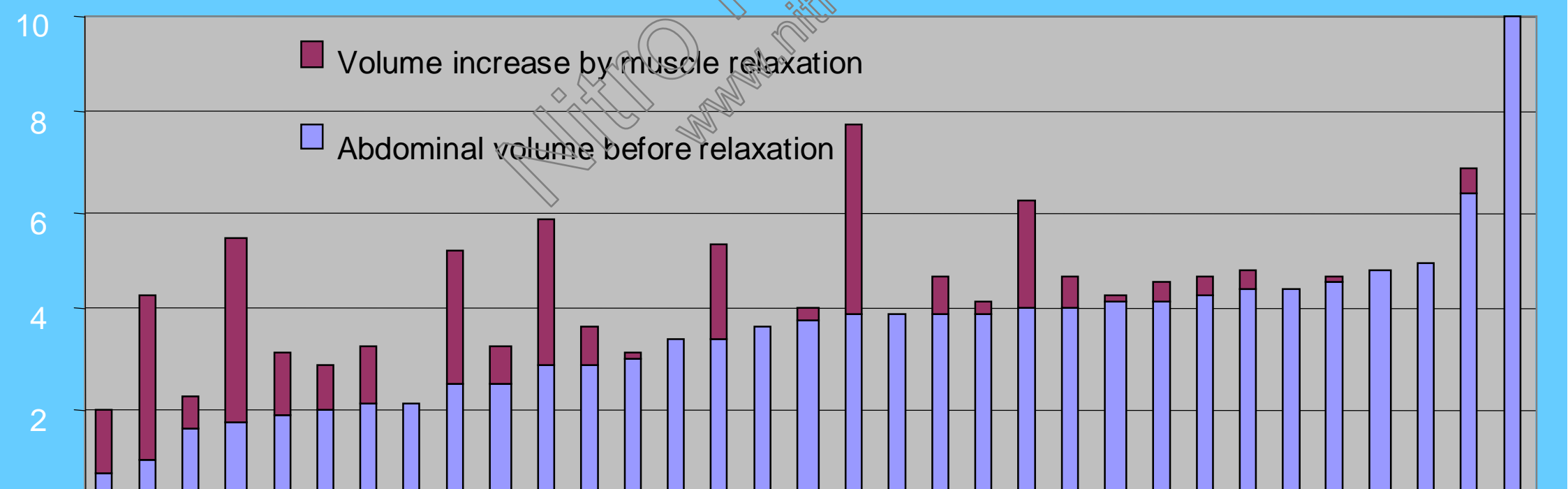
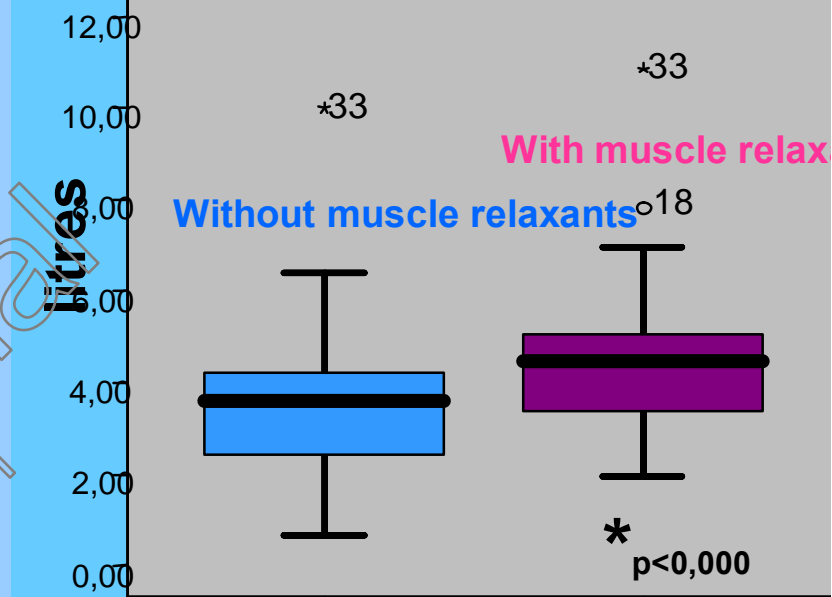
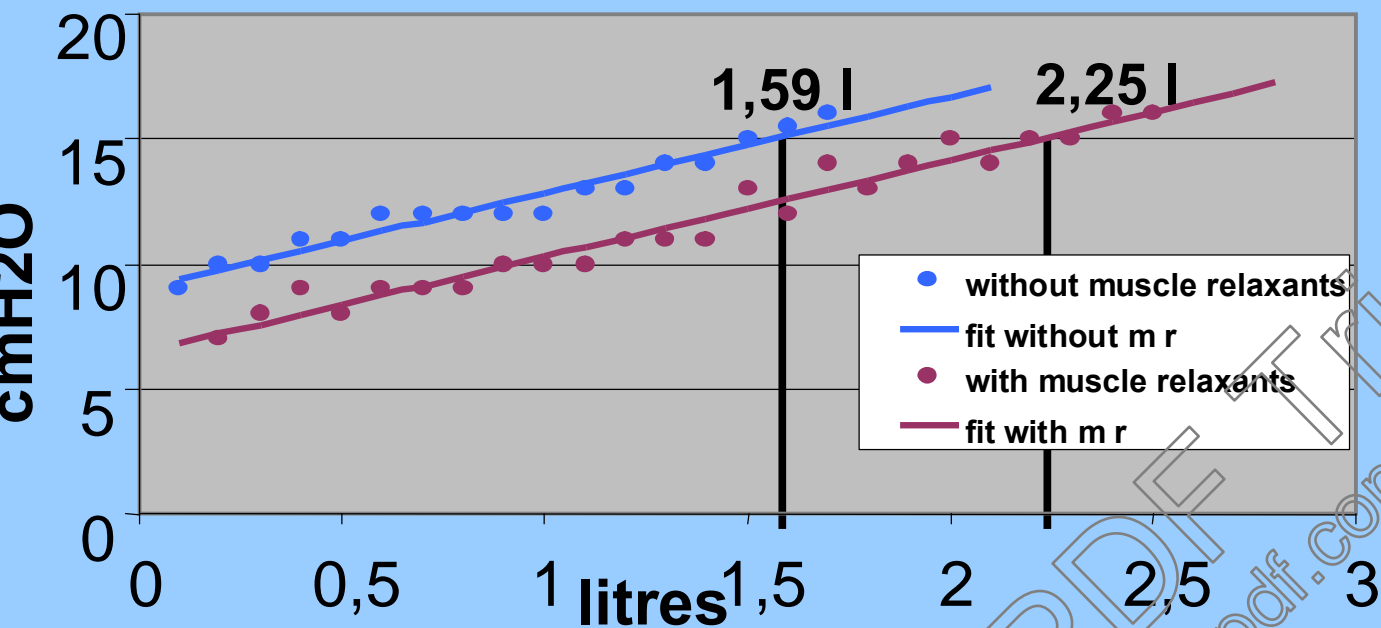
Goal of Study

The aim of the study was to evaluate the effect of muscle relaxants on the abdominal pressure-volume relation.

Methods and analysis

- 33 patients, ASA class I, II or III and scheduled for a bariatric laparoscopic intervention were included in this study with approval from the hospital ethical committee.
- **Age, length, bmi, sex, and gravidity** were recorded.
- Anaesthesia was induced with Propofol 200 mg, Sufentanil 20 ug, Succinylcholine 100 mg and Sevoflurane 1.5 Mac in a 50 % O₂/N₂O. Patients were asked to empty the bladder before surgery.
- The stomach was emptied by suction through a gastric tube. All the CO₂ was allowed to escape after insertion of the trocar.
- The insufflator Olympus UHI-3 was initialised and during a stepwise insufflation at a flow of 1 l/min the **abdominal pressure and volume** were measured.
- 20 mg Cisatracurium was given and after **confirming muscle relaxation** with a post-tetanic count stimulation, the **second** insufflation and **measurement** was done.
- Pressure-volume data were fit by a **linear least-squares regression** and used to calculate the abdominal volume at 15 cmH₂O pressure
- A **logistic regression analysis** was done to find the variables determining the abdominal volume before relaxation.
- The abdominal volume increase by muscle relaxants was analyzed by a **paired t test** and by a **logistic regression analysis** for its variables.

Results





Discussion

- **Multiparae** ($p=0,027$) have significantly larger abdomens.
- Abdominal volume increased significantly ($p=0,000$) **0,95 l** with a large stdv of 1,22 l.
- The increase was significantly more in **tall** patients ($p=0,047$) and in patients with a **small abdominal** volume before insufflation ($p=0,003$).

Conclusion

- Muscle relaxation during laparoscopy for bariatric surgery helps to **increase** the abdominal volume in many patients and therefore the surgical workspace and visibility.
- **Multipara** have the largest abdomen.
- Abdominal volume increased most in patients with a **small** abdomen.
- Some patients have already a large abdomen and don't need muscle relaxation.
- Muscle relaxation is not effective in every patient.