

Julia-Kristin Graß¹, Chien-Chih Chen², Nathaniel Melling³, Bharathi Lingala⁴, Marius Kemper¹, Roberto Persiani⁵, Flavio Tirello⁵, Marco Caricato⁶, Jakob R. Izbicki¹, Daniel Perez¹

¹Universitätsklinikum Hamburg-Eppendorf, Klinik für Allgemein-, Viszeral- und Thoraxchirurgie, Hamburg, Deutschland, ²National Yang-Ming University, College of medicine, Taiwan, ³Universitätsklinikum Hamburg-Eppendorf, Hamburg, Deutschland, ⁴Universität Stanford, Department of Cardiothoracic Surgery, Stanford, USA, ⁵Gemelli-Klinik, Roma, Italien, ⁶Universita' Campus Bio-medico, Roma, Italien

Robotic rectal resection preserves anorectal function: systematic review and meta-analysis

Background:

Survival of rectal cancer patients has improved substantially over the last two decades, generating a growing interest in functional outcomes after total mesorectal excision (TME).

Urogenital and anorectal dysfunction is frequently reported after conventional LAR. Advanced minimally-invasive techniques such as robotic (RoTME) might improve functional results by precisely dissecting and preserving autonomic nerves.

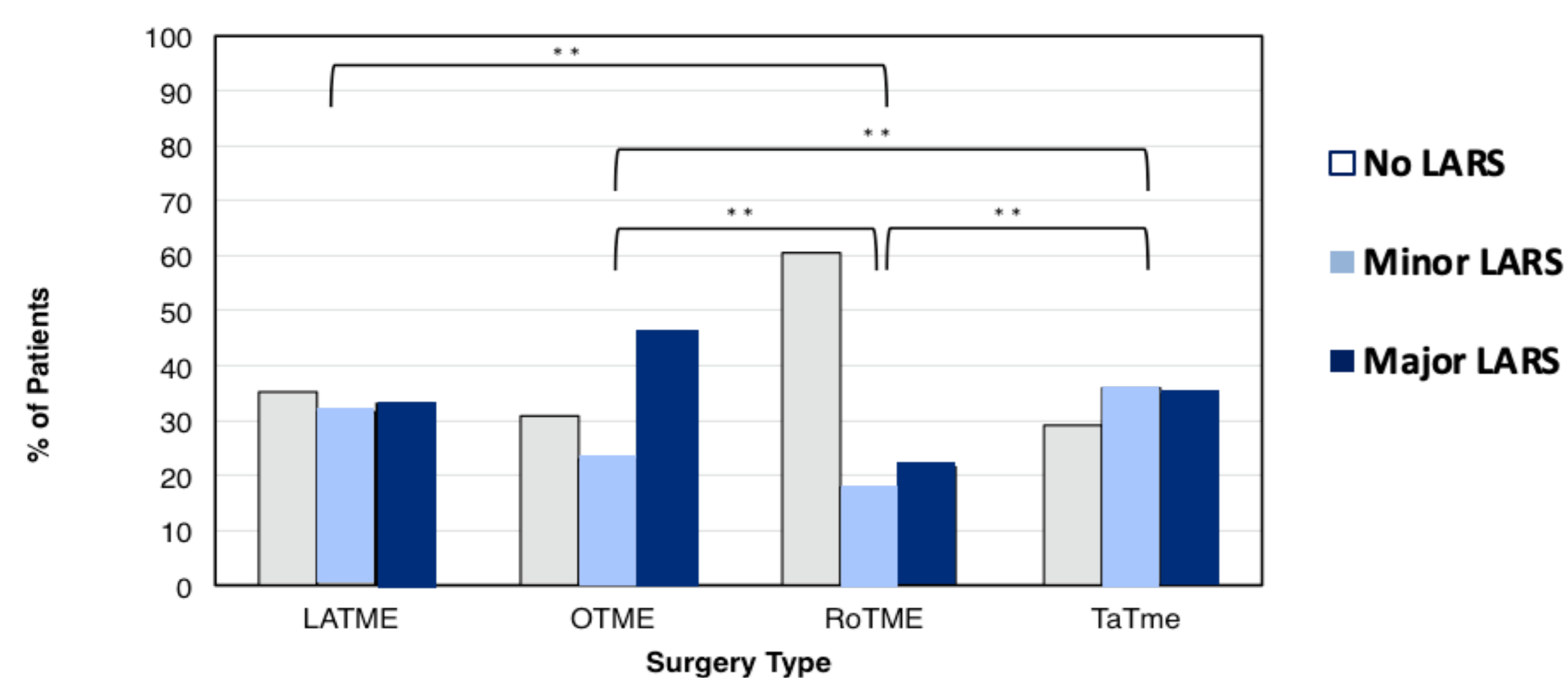
Methods:

- Systematic literature review for functional outcome following TME for rectal cancer by means of the LARS score, compared with consecutive series of robotic TME of 48 patients.
- Evaluation of urinary and sexual outcome in the consecutive series using patient reported outcome measures 12 months after surgery compared to preoperative scores (response rate 79.5%)

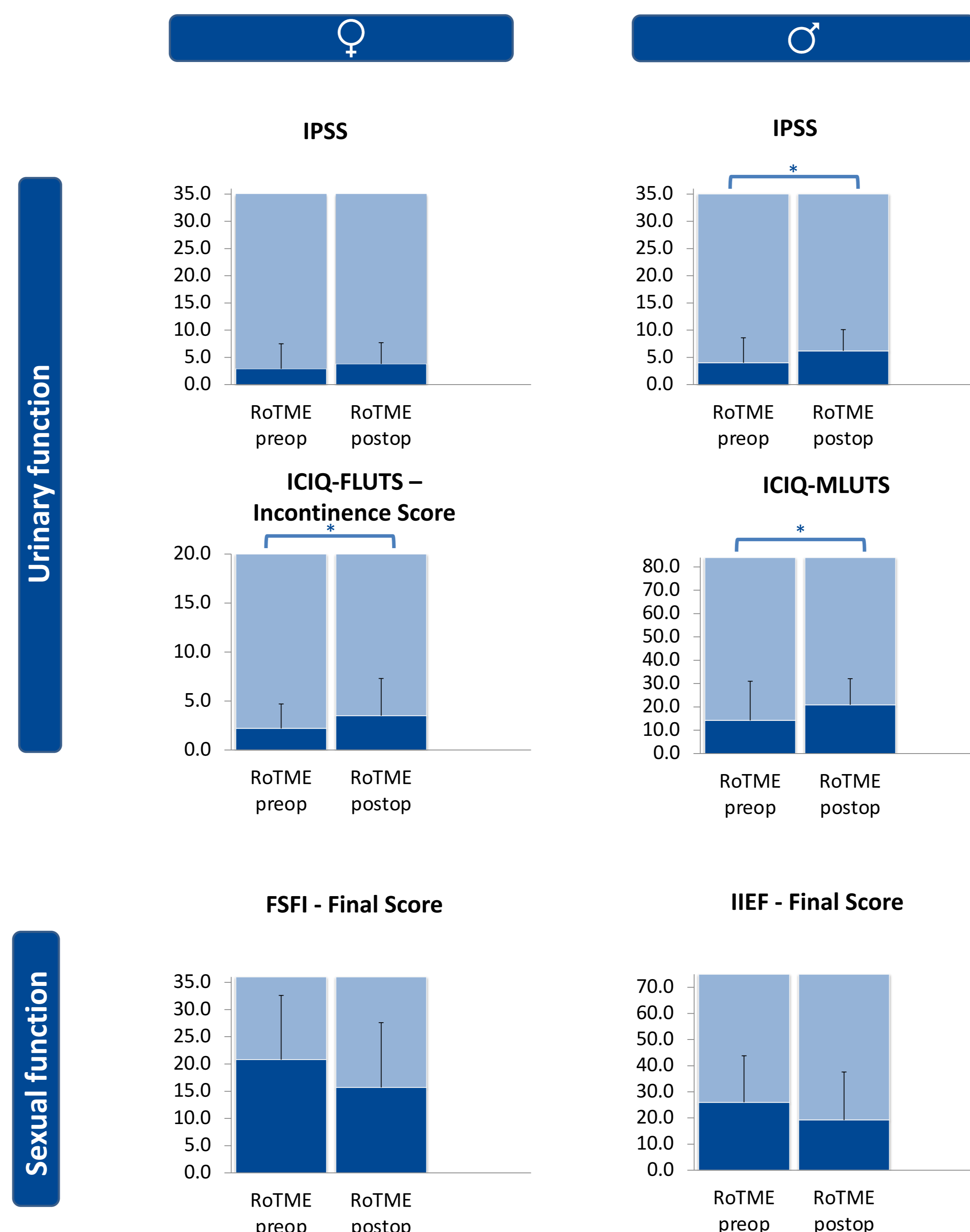
Results:

- systematic literature review :32 publications, including 5565 patients.
- **Bowel function** recovered significantly better within one year after robotic TME, compared with laparoscopic, open and transanal TME
- Male and female **urinary function** showed a mild but significant postoperative deterioration following RoTME
- Male and female **sexual function** revealed comparable pre- and postoperatively results

Bowel function



| | RoTME | | p-value | Range |
|-------------------------------|-----------|-----------|--------------|----------|
| | Preop | Postop | | |
| LARS Score | 8.9±11.7 | 3.8±1.9 | 0.630 | 0-42 |
| ICIQ-MLUTS LF | 14.2±16.8 | 20.9±11.2 | 0.032 | 1-84 |
| IPSS – male patients | 4.0±4.6 | 6.2±3.9 | 0.013 | 0-35 |
| ICIQ-FLUTS Incontinence Score | 2.2±2.5 | 3.5±3.8 | 0.027 | 0-20 |
| IPSS – female patients | 2.9±2.3 | 3.8±2.9 | 0.079 | 0-35 |
| IIEF - Final Score | 26.0±17.8 | 19.2±18.4 | 0.051 | 5-75 |
| Final FSFI | 20.8±11.8 | 15.7±11.9 | 0.477 | 2.0-36.0 |



Discussion:

Despite frequent risk factors such as chemoradiation and low anastomosis, RoTME demonstrated a good preservation of functional outcome. Optimized visualization of the hypogastric nerves might support favorable urogenital function.

Conclusion:

This study provides first evidence of advantages of advanced minimally-invasive TME techniques on long-term functional outcomes for rectal cancer patients. Further high-quality analyses are needed to corroborate this observation.