

Comparative Analysis of Perioperative and Long-term Outcomes in Marfan Syndrome Patients Undergoing Open Thoracoabdominal Aortic Aneurysm Repair

Luchen Wang

Department of Vascular Surgery

Fuwai Hospital, National Center for Cardiovascular Diseases, Chinese Academy of Medical Sciences and Peking Union Medical College

Background

- **Thoracoabdominal aortic aneurysm (TAAA) is a life-threatening disease with surgical challenges, while Marfan syndrome (MFS) is one of its key pathogenic factors.**
- **A consensus on management for the TAAA in patients with MFS has not been established.**
- **This study aimed to compare the perioperative and long-term outcomes after open TAAA repair in patients with and without MFS.**

Methods

- This retrospective study included 230 consecutive patients who underwent TAAA repair from 2012 to 2022.
- We compared 69 MFS patients with 161 non-MFS patients.
- The primary endpoints were overall survival and composite adverse events, encompassing early mortality, persistent stroke, persistent paraplegia, and acute renal failure requiring continuous dialysis.
- Multivariable logistic regression analysis and Cox proportional hazards models were employed to identify risk factors for composite adverse events and overall survival.

Results

- MFS patients were younger than non-MFS patients (31.9 ± 8.5 vs 44.8 ± 12.3 years; $P < 0.001$) and underwent more Crawford extent III repairs (56.5% vs 34.8%; $P = 0.002$).
- No significant difference in major adverse events was found between groups (10.1% in MFS vs 13.0% in non-MFS; $P = 0.248$).
- Overall survival was significantly elevated in the MFS group compared to the non-MFS group (log-rank $P = 0.024$).

Results

- **Multivariable logistic regression analysis identified age ≥ 50 years (OR 4.08, 95%CI: 1.62-10.27; P=0.003), Crawford II repair (OR 5.68, 95%CI: 1.12-28.78; P=0.036), and Crawford III repair (OR 9.76, 95%CI: 2.01-47.27; P=0.005) as independent risk factors for composite adverse events.**
- **Multivariable Cox proportional hazards models confirmed MFS (HR 0.39, 95%CI: 0.17-0.93; P=0.034) as an independent protective factor for overall survival, whereas age ≥ 50 years (HR 2.43, 95%CI: 1.22-4.84; P=0.012) and previous aortic repair (HR 2.90, 95%CI: 1.40-6.02; P=0.004) emerged as independent risk factors.**

Conclusion

- **Open TAAA repair in MFS patients, despite different risk profiles, can achieve similar or even superior operative outcomes compared to non-MFS patients.**
- **Enhanced surgical vigilance and meticulous perioperative care are essential, particularly for patients who are of advanced age, subjected to extensive repairs, or have a history of prior interventions.**
- **Surgical approaches and adjunctive techniques should be individualized to meet the specific needs of each patient to optimize outcomes.**