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

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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 identified 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.