Is kidney function a risk factor in the development of severe aortic stenosis?

Karolina Beg[1],
Sandra Jakšić Jurinjak[1,2]*,
Andro Koren[1],
Luciana Koren[1],
Vice Zubak[1],
Vlatka Rešković Lukšić[1,2],
Marija Brestovac[2],
Martina Lovrić Benčić[1,2],
Joško Bulum[1,2],
Zvonimir Ostojić[1,2],
Blanka Glavaš Konja[2],
Jadranka Šeparović Hanževački[1,2]

[1]University of Zagreb, School of Medicine, Zagreb, Croatia
[2]University Hospital Centre Zagreb, Zagreb, Croatia

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***ADDRESS FOR CORRESPONDENCE:** Sandra Jakšić Jurinjak, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000 Zagreb, Croatia. / Phone: +385-1-2388-888 / E-mail: sjaksicj@gmail.com

ORCID: Karolina Beg, https://orcid.org/0009-0009-6670-9956 • Sandra Jakšić Jurinjak, https://orcid.org/0000-0002-7349-6137
Andro Koren, https://orcid.org/0009-0006-7586-1624 • Luciana Koren, https://orcid.org/0009-0002-1994-3511
Vice Zubak, https://orcid.org/0009-0004-0688-7834 • Vlatka Rešković Lukšić, https://orcid.org/0000-0002-4721-3236
Martina Lovrić Benčić, https://orcid.org/0000-0001-8446-6120 • Marija Brestovac, https://orcid.org/0000-0003-1542-2890
Joško Bulum, https://orcid.org/0000-0002-1482-6503 • Zvonimir Ostojić, https://orcid.org/0000-0003-1762-9270
Blanka Glavaš Konja, https://orcid.org/0000-0003-1134-4856 • Jadranka Šeparović Hanževački, https://orcid.org/0000-0002-3437-6407

Introduction: Chronic kidney disease negatively impacts valves by increasing the incidence of calcifications on the valves and mortality.[1,2] The goal of the study was to examine the correlation between severe aortic stenosis (AS), its risk factors and kidney function.

Patients and Methods: The retrospective study included 548 patients with severe AS, admitted from September 2020 to August 2024 at our Heart Valve Department. More patients were female (54%, N=296). 38 patients were <65 years, while 70.2% patients were >75 years old (N=385). Mean ejection fraction of the left ventricle (EFLV) was 51.501±11.502 [15-80], and mean eGFR was 59.549±22.322. They were divided into three groups (terciles) according to estimated glomerular filtration rate (eGFR): the *1st group* included those with eGFR ≤49 mL/min/1.73m², the *2nd group* consisted of patients with eGFR 50-72 mL/min/1.73m², while the *3rd group* was composed of patients with eGFR >72 mL/min/1.73m². We compared eGFR and risk factors: arterial hypertension (AH), diabetes mellitus (DM), smoking, dyslipidemia (DIS) and body mass index (BMI). Additionally, we compared eGFR groups and atrial fibrillation (AF), coronary artery disease, and coexisting multivalvular disease (mitral/tricuspid valve regurgitation, mitral valve stenosis).

Results: Standard cardiovascular risk factors: AH, DM, and DIS were more common in the *1st group* (patients with severe AS and eGFR values ≤49 mL/min/1.73m²) compared to the *3rd group* (patients with eGFR >72 mL/min/1.73m²) (respectively P<0.001, P=0.027, P=0.004). Atrial fibrillation was more prevalent in patients with eGFR ≤72 mL/min/1.73m², *1st and 2nd group* compared to *3rd group* (P=0.013). When comparing coexisting multivalvular disease, the *1st* with the *3rd group*, mitral valve regurgitation (MR) showed a positive tendency for significance (P=0.05). No statistically significant correlation was observed between BMI and eGFR in patients (P=0.07, Pearson correlation test: r=0.027, P=0.53). When comparing patients by age, those >75 years old, had a lower eGFR compared to younger groups, as expected (P<0.001).

Conclusion: Our results suggest that patients with severe AS and kidney dysfunction eGFR ≤49 mL/min/1.73m² are older, and more commonly have AH, DM, DIS, and mitral valve involvement marked as MR. Moreover, even those with eGFR ≤72 mL/min/1.73m² can have a greater risk for AF.

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LITERATURE

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