

**The clinical implications of serum uric acid levels in adult patients with congenital heart disease**

*Inai K., Shimada E., Yamamura H., Shinohara T., Nakanishi T.*

*Heart Institute, Department of Pediatric Cardiology, Tokyo Women's Medical University, Tokyo, Japan*

Background and aims: Serum uric acid (UA) is a strong predictor of cardiovascular risks in patients with chronic heart failure. In adult patients with congenital heart disease (ACHD), the prevalence of hyperuricemia is largely unknown. It also remains undetermined whether hyperuricemia can predict cardiovascular events in ACHD. The aim of this study was to investigate the prevalence of hyperuricemia and to assess the clinical contribution of serum UA to the risk of cardiovascular events in ACHD.

Methods and Results: A total of 257 patients were enrolled (mean age 30+/-10 years, 45% female). The mean UA level in this cohort was 5.8+/-1.6 mg/dl and 46 patients (18%) had hyperuricemia. During a follow-up of 42±19 months, 66 patients (26%) experienced a cardiovascular event (cardiac death, symptomatic arrhythmia, hospitalization due to worsening heart failure, or thromboembolism). Patients with hyperuricemia had higher risk for cardiovascular events compared with patients without hyperuricemia, (46% vs 22%, p<0.05). On multivariate regression analysis, a high serum uric acid level was associated with the hemoglobin level (p=0.015), serum creatinin level (p=0.005) and aortic desaturation (p<0.001). The independent predictors of hyperuricemia were found to be male gender (hazard ratio 2.58, p=0.003), diuretics use (HR 2.52, p=0.004), hemoglobin level (hazard ratio 2.61, p=0.007), and aortic desaturation (hazard ratio 1.42, p=0.025). Kaplan-Meier analysis indicated that patients with hyperuricemia had a higher incidence of cardiovascular events. However, Cox proportional hazard analysis showed that hyperuricemia was not an independent predictor of cardiovascular events, while diuretics use was a strong predictor.

Conclusions: Hyperuricemia is relatively common in ACHD. High serum uric acid levels are associated with polycythemia, impaired renal function, and aortic desaturation. Although hyperuricemia may be a predictor of morbidity and mortality in ACHD, it is not independent of several confounders, especially diuretic use.