



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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## **Effect of $\beta$ -blockers treatment for cancer incidence and survival in patients undergoing maintenance hemodialysis**

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**Objectives :** Cancer is an increasingly important cause of morbidity and mortality among patients undergoing hemodialysis (HD). Although  $\beta$ -blockers have been suggested to exert potential anticancer effects through pleiotropic mechanisms, evidence in HD populations remains limited.

**Methods :** Using nationwide data from the Korean Health Insurance Review and Assessment Service, we conducted a retrospective cohort study of adult patients receiving maintenance HD.  $\beta$ -blocker exposure was defined as  $\geq 60$  cumulative days of  $\beta$ -blocker prescription within a 1-year. Incident cancer and post-diagnosis survival were evaluated.

**Results :** Among 58,822 HD patients, 25,152 were classified as  $\beta$ -blocker users. During a mean follow-up of approximately 5 years, overall cancer incidence did not differ between  $\beta$ -blocker users and non-users. Five-year cancer-free rates were comparable in both the total and propensity-matched cohorts. However, post-cancer diagnosis survival was lower among  $\beta$ -blocker users. In cancer-specific analyses,  $\beta$ -blocker use was associated with a higher incidence of lung and renal cancers, whereas risks for other major cancers did not differ significantly.

**Conclusions :**  $\beta$ -blockers use was not associated with overall cancer incidence. However,  $\beta$ -blocker use was associated with a higher risk of renal and lung cancer and appeared to be linked to poorer overall survival among patients with cancer. Given the limitations of the study, establishing a robust causal relationship between  $\beta$ -blocker therapy and cancer development or cancer-related survival in patients undergoing HD remain challenging.