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Association of eGFR With Asthma Incidence: A Population-Based Study in the US Using NHANES Data.

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Objectives : Decline in estimated glomerular filtration rate (eGFR) is associated with a higher risk of asthma incidence. Despite numerous global studies, research on this topic within the US is lacking. Our study aims to investigate the relationship between chronic kidney disease (CKD) and asthma, examining various population characteristics, comorbidities, and inflammatory markers.
Methods : We analyzed 9450 adults aged ≥18 years from NHANES 2017-2018, supplemented until March 2020. Glomerular filtration rates (GFR) were categorized into four quartiles: > 75, 50-75, 25-50, and <25 ml/min/1.73 m^2[Fig01]. Our focus was on decreased GFR in asthma diagnosis, adjusting for various factors using multivariate COX analysis. The secondary outcome was to determine the prevalence of inflammatory markers (HS-CRP and Ferritin) among populations with and without the disease.
Results : Chronic kidney disease (CKD) is positively associated with asthma, displaying an inverse J-shaped pattern. The lowest asthma incidence is observed among patients in CKD Stage 2 to Early 3a, while the highest incidence occurs in CKD late 3a to early 4 stage [Fig02]. Additionally, our results revealed that patients with asthma and decreased renal function exhibited higher levels of HS-CRP ($p < 0.0001$). The additional risk of asthma in advanced CKD may be attributed to the asthmatic risk in populations with chronic uremic states and accumulation of inflammatory substances.
Conclusions : Since asthma involves an inflammatory state, the increased risk of developing asthma in chronic kidney disease (CKD) may be explained by chronic uremic and inflammatory processes, particularly in advanced CKD stages.

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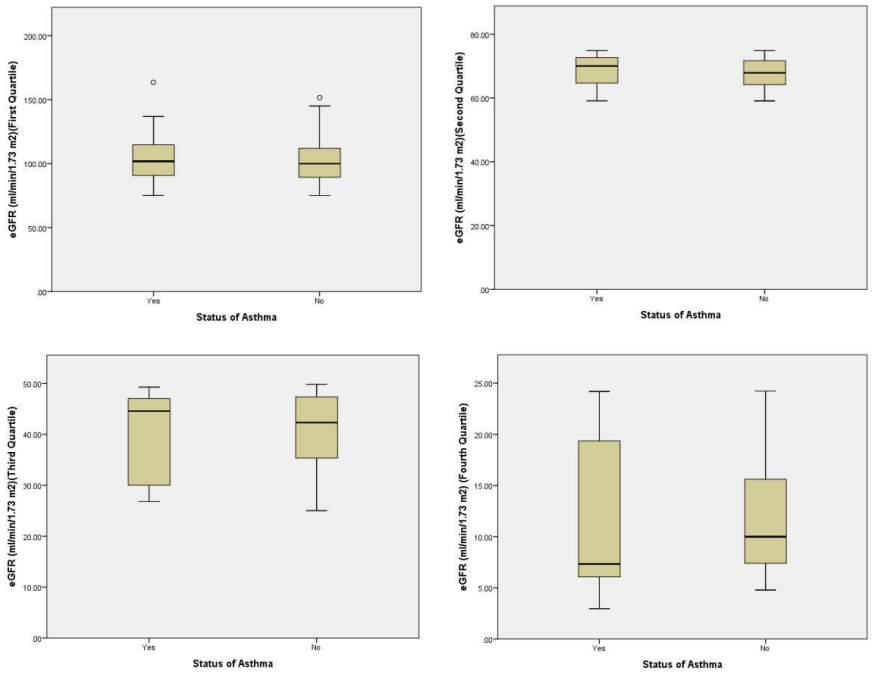

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