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Inverse Relationship Between Creatinine-to-Body Weight (Cre/BW) Ratio and Incident Diabetes in a Multiethnic Cohort

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Abstract

Background: Emerging evidence suggests that the creatinine-to-body weight (Cre/BW) ratio is a predictor for incident diabetes in the Asian population.

Objective: We aimed to explore the association between the Cre/BW ratio and incident diabetes in a multiethnic Malaysian cohort as well as to correlate the Cre/BW ratio to body fat mass.

Methods: A total of 13,047 eligible participants were selected from 119,560 The Malaysian Cohort participants. Of these 13,047 participants, 750 who developed diabetes during the follow-up, while 3,750 controls were chosen randomly from the healthy participants. The participants were stratified into four groups based on the Cre/BW ratio quartiles. The Cox proportional hazards model was used to evaluate the effect of the Cre/BW ratio on developing incident diabetes. The association between the Cre/BW ratio to body composition was later assessed using the Pearson correlation coefficient.

Results: Of the 13,047 participants who were successfully followed up over 5 years without missing data, 5.75% (n = 750) developed diabetes. The diabetes incidence decreases with increasing Cre/BW ratios. After adjusting for covariates, the Cox regression analysis reveals that Cre/BW was inversely correlated with diabetes risk (HR: 0.403, 95% CI: 0.315-0.515, P < 0.001). In addition, males and Indians have a higher risk of developing incident diabetes than their counterparts. A correlation was also observed between Cre/BW ratio and body fat mass.

Conclusion: This study indicated an inverse association between the Cre/BW ratio and incident diabetes. It also found a significant moderate correlation between the Cre/BW ratio and body fat mass.

Keywords: creatinine-to-body weight (Cre/BW) ratio, diabetes, The Malaysian Cohort, body fat

Abbreviations: Cre/BW - creatinine-to-body weight; TMC- The Malaysian Cohort; HR-hazard ratio.

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