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Comparison of the Diagnostic Relevance of Albumin Creatinine Ratio Versus Cystatin C in Assessment of Cardiovascular Complication in Type 2 Diabetics.

Comparaison De La Pertinence Diagnostique Du Rapport Albumine Créatinine Par Rapport À La Cystatine C Dans L'évaluation De La Complication Cardiovasculaire Dans Le Diabétique De Type 2

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ABSTRACT

Background: In a bid to reduce cardiovascular complication(s), surrogate markers such as Albumin-creatinine ratio and Cystatin C (Cys-C) are being evaluated in order to enhance early management of cardiovascular complications of diabetes mellitus. **AIM:** Evaluation of the diagnostic relevance of Cystatin- C versus Albumin-creatinine ratio in assessment of cardiovascular complications (CVC).

Methods: One hundred and two type 2 diabetic patients and 100 control subjects of same age range were recruited for this study. These were further classified according to cardiovascular complications. Cystatin-C, Microalbuminuria, serum creatinine, HBA1c and HBA1c were analysed with standard methods.

Results: The mean concentrations of Cys-C, Microalbuminuria and Albumin-creatinine ratio showed significant increase ($p < 0.05$) in those with cardiovascular complication compared to those without cardiovascular complication. The ROC (receiver operator curve) showed that Albumin-creatinine ratio (ACR) had significant sensitivity to cardiovascular complication while Cystatin-C showed no significant sensitivity to cardiovascular complications. Logistic binary regression shows a significant association of ACR with cardiovascular complications unlike Cys-C which showed no significant association ($p < 0.05$).

Conclusion: Cys-C and Albumin-Creatinine ratio increased in diabetics and further deranges with cardiovascular complications. However, Albumin-creatinine ratio showed more diagnostic sensitivity to cardiovascular complications compared to cystatin-C. **WAJM 2021; 38 (4): 328-334**

Keywords: Cystatin-C; Albumin-creatinine ratio; Diabetes mellitus, Cardiovascular Diseases

ABSTRAIT

Contexte: Dans le but de réduire les complications cardiovasculaires, des marqueurs de substitution tels que le rapport albumine-crétinine et la cystatine C (Cys-C) sont en cours d'évaluation afin d'améliorer la prise en charge précoce des complications cardiovasculaires du diabète sucré. **BUT:** Évaluation de la pertinence diagnostique du rapport Cystatine-C versus Albumine-crétinine dans l'évaluation des complications cardiovasculaires (CVC).

Méthodes: Cent deux patients diabétiques de type 2 et 100 sujets témoins de la même tranche d'âge ont été recrutés pour cette étude. Ceux-ci ont été classés en fonction des complications cardiovasculaires. La cystatine-C, la microalbuminurie, la créatinine sérique, HBA1c et TSH ont été analysées avec des méthodes standard.

Résultats: Les concentrations moyennes de Cys-C, de microalbuminurie et de rapport albumine-crétinine ont montré une augmentation significative ($p < 0,05$) chez les personnes souffrant de complications cardiovasculaires par rapport à celles sans complications cardiovasculaires. La ROC (courbe de l'opérateur du récepteur) a montré que le rapport albumine-crétinine (ACR) avait une sensibilité significative aux complications cardiovasculaires tandis que la cystatine-C n'a montré aucune sensibilité significative aux complications cardiovasculaires. La régression logistique binaire montre une association significative de l'ACR avec des complications cardiovasculaires contrairement à Cys-C qui n'a montré aucune association significative ($p < 0,05$).

Conclusion: Le rapport Cys-C et albumine-crétinine a augmenté chez les diabétiques et dérange davantage avec des complications cardiovasculaires. Cependant, le rapport albumine-crétinine a montré une plus grande sensibilité diagnostique aux complications cardiovasculaires par rapport à la cystatine-C. **WAJM 2021; 38 (4): 328-334**

Mots clés: Cystatine-C; Rapport albumine-crétinine; Diabète sucré, maladies cardiovasculaires

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Abbreviations: DM-Diabetes Mellitus; Cys-C-Cystatin C; ACR-Albumin-to-Creatinine Ratio; CVC-Cardiovascular Complications; CVD-Cardiovascular Diseases