00521 Evaluating Ace Activity and Genotype as Potential Risk Factors of Severe Hypoglycaemia in Chinese Patients With Type 2 Diabetes

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Aims: The deletion polymorphism of the angiotensin converting enzyme (ACE) is associated with high ACE activity, prompting higher maximal heart rates and reduced aerobic capacity. Recognition and management of hypoglycaemic events require a preserved level of cognitive function that may be impaired in patients with the deletion genotype due to the inefficient utilisation of limited circulating glucose. This study aims to evaluate the role of ACE activity level and genotype in predicting severe hypoglycaemic (SH) events among Chinese T2DM patients.

Methodology: 163 insulin treated Chinese T2DM patients of 21 years and above who have undergone at least 1 year of insulin therapy were recruited. Impaired awareness of hypoglycaemia (IAH) was evaluated with Clarke questionnaires. Supplementary data such as diabetes duration, diabetes control (HbA1c), diabetes treatment, and daily insulin dose were also collected. Blood samples were taken on the first visit for ACE activity measurement and genotyping.

Result: ACE genotype had no significant effect on the number of SH episodes (p=0.328). Serum ACE activity was related to ACE genotype (p=0.005), but was unrelated to HbA1c (p=0.681), duration of insulin treatment (p=0.389), and gender (p=0.776). There was a weak positive relationship between serum ACE activity and number of SH episodes where the expected count of the number of SH episodes increased by 0.895 for each unit of ACE activity (p=0.049). Clarke scores of IAH showed no significant correlation to ACE activity levels (p=0.070).

Conclusion: In this study, high serum ACE activity may be a clinically significant risk factor of SH in T2DM patients. However, carrying the deletion genotype does not predict an increased risk of SH in hinese T2DM patients.