Prevalence and Predictors of Sarcopenia in Pre dialysis Chronic Kidney Disease Patients in A Tertiary Care Centre in Johor

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ABSTRACT

Introduction: Sarcopenia is a condition characterized by progressive and generalised loss of skeletal muscle mass and function associated with aging. However, in chronic kidney disease (CKD), sarcopenia is not necessarily age-related as it occurs due to accelerated protein catabolism. Therefore, this study aimed to identify the prevalence of sarcopenia and its associated risk factors in pre-dialysis CKD patients. **Methods:** A cross-sectional study was conducted among 250 pre-dialysis CKD patients above 18 years-old attending out-patient Renal Clinic in Hospital Pakar Sultanah Fatimah Muar Johor, Malaysia from April to November 2019. Anthropometrics, body composition, gait speed, and handgrip strength were measured. Criteria of Asian Working Group for Sarcopenia was used to identify the presence of sarcopenia. Modified Barthel Index (MBI) questionnaire was used to determine their functional independence. Logistic regression analysis was performed to identify significant risk factors associated with sarcopenia. **Results:** Overall prevalence of sarcopenia was detected in 5.2% of pre-dialysis CKD patients with CKD stage 3-5 contributing 0.4%, 0.8%, and 4% respectively. Multiple logistic regression models showed age (AOR: 0.966, 95% CI: 0.801-1.164), body mass index (BMI) (AOR: 0.390, 95% CI: 0.166-0.912), presence of chronic illness (AOR: 0.529, 95% CI: 0.023-12.237), MBI score (AOR: 0.644, 95% CI: 0.470-0.884, and serum albumin (AOR: 0.813, 95% CI: 0.526-1.257) were associated with sarcopenia. **Conclusion:** The prevalence of sarcopenia increased with the deterioration of kidney function. Lower BMI and poor functional independence were found to be predictors of sarcopenia. Managing the modifiable risk factors decreases the odds of developing sarcopenia.

Exploring The Potential of Metabo-Endotypes Using Plasma in Early Phase Herbal Trials: A Phase 1, Single-Centre, Open-Labelled, Randomized-Controlled, Oral Administration of Andrographis paniculata Capsules Pharmacometabolomic Study in Health Volunteers

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ABSTRACT

Introduction: Metabo-endotypes is defined as a distinct functional or pathobiological mechanism from a subtype of condition derived via metabolomic profiling. Early phase clinical trials aim to profile the pharmacokinetics and explore the pharmacodynamics of medicines. Application of pharmacometabolomics in early phase clinical trials provide insights of significant metabo-endotypes that produce biological perturbation of the drug in human. Andrographis paniculata (AP) is a well-known herbal medicine that contained multi-phytochemicals which have been registered for traditional use in different doses. In this work, metabolomics is proposed to explore the pharmacodynamic effects of AP capsules in 1000mg and 2000mg doses. **Methods:** The trial was approved by ethics committee and registered with NMRR and ClinicalTrials.gov. Eligible subjects were randomized to either 1000mg or 2000mg of AP capsules. Plasma samples were collected from subjects to analyse using high resolution liquid chromatography mass spectrometry with C18 column. The data were processed in MetaboAnalyst to perform principal component analysis, fold change, t-test and volcano plot to identify significant features. The significant features were paired with knowledge-driven database to identify possible human metabolic pathways. Results: At peak plasma time points, AP 1000mg demonstrate significant in carnitine shuttle metabolic pathways in the positive mode. Purine metabolism and leukotriene metabolism are profound in the negative mode. For AP 2000mg, carnitine shuttle remained significant metabolic pathway with higher compound hits in the positive mode, arachidonic acid metabolism and glycosphingolipid metabolism are mainly observed in negative mode. **Conclusion:** Pharmacometabolomics can derived the metabo-endotypes with pharmacological effects to provide insights of the pharmacological pathways for medicines.