Profil Integritas Membran Sel Sebagai Prediktor Malnutrisi Awal Pada Penyakit Ginjal Kronik Stadium 3-5 Non-Dialisis Berdasarkan Phase Angle = Cell Membrane Integrity Profile as a Pedictor of Early Malnutrition in Non-Dialysis Stage 3-5 Chronic Kidney Disease Based on Phase Angle

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Abstrak

Latar Belakang : Malnutrisi energi protein sering terjadi pada penyakit ginjal kronik, terutama stadium lanjut (prevalensi 11-54% pada stadium 3 sampai 5). Phase angle (PA) pada BIA menggambarkan integritas membran sel yang nilai rendahnya dapat menjadi prediktor kuat malnutrisi di tingkat seluler. Tujuan Mengetahui sebaran nilai phase angle pada masing-masing stadium lanjut PGK yaitu stadium 3-5 non-dialisis, mengetahui gambaran komposisi tubuh meliputi indeks massa lemak, indeks massa bebas lemak, cairan tubuh, dan indeks edema yang bermanfaat untuk deteksi dini malnutrisi dan kelebihan cairan. Metode Penelitian ini menggunakan desain potong lintang di Rumah Sakit Cipto Mangunkusumo (RSCM), RSUP Fatmawati, dan RSUP Persahabatan pada Maret sampai Juli 2023. Pengambilan sampel menggunakan consecutive sampling pada pasien PGK stadium 3-5 non-dialisis, usia 18-60 tahun, tanpa keganasan, sirosis hati, infeksi, maupun autoimun, dengan ADL normal. Kemudian dilakukan pemeriksaan BIA dan SGA pada seluruh subjek. Hasil Didapatkan 138 sampel, dengan dominasi wanita (58%) kategori obesitas derajat 1, dengan median eLFG 23,2 ml/menit. Proporsi malnutrisi berdasarkan SGA sebesar 19,5%. Profil phase angle mengalami tren penurunan seiring dengan meningkatnya stadium tanpa kemaknaan statistik (p=0,072). Indeks massa lemak menurun dengan p=0,038. Sedangkan ECW dan TBW meningkat bermakna (p=0,001 dan 0,031). Kesimpulan Profil phase angle pada PGK non-dialisis cenderung sedikit menurun seiring dengan peningkatan stadium PGK. Profil ECW dan TBW mengalami peningkatan signifikan seiring dengan meningkatnya stadium PGK, tanpa disertai perubahan indeks edema (ECW/TBW). Profil FM dan FM-I mengalami penurunan seiring peningkatan stadium PGK.

.....Background Chronic kidney disease, especially in its advanced stages, often coincide with protein and energy malnutrition with a prevalence of 11-54% in stages 3 to 5. The phase angle (PA) in BIA describes the integrity of cell membranes whose low values can be a strong predictor of malnutrition at the cellular level. Objective Firstly, to determine the distribution of phase angle values in each advanced stage of CKD, namely the non-dialysis stages 3-5. Secondly, to identify the profile of body composition including fat mass index, fat-free mass index, body fluids, and oedema index which are useful for early detection of malnutrition and fluid excess. Method This research is a cross sectional study. It was carried out at Cipto Mangunkusumo Hospital (RSCM), Fatmawati Hospital, and Persahabatan Hospital between March and July 2023. Consecutive sampling method was used with non-dialysis stages 3-5 CKD patients, aged 18-60 years, without malignancy, liver cirrhosis, infection, nor autoimmune, with normal ADLs. Then BIA and SGA examinations were performed on all subjects. Results

138 samples were collected, which dominated by women (58%) and stage 1 obesity with a median eGFR of 23.2 ml/minute. The proportion of malnutrition based on SGA is 19.5%. Phase angle profile shows a decreasing trend with increasing stage of CKD without a statistical significancy (p=0.072). Fat mass index decreased significantly (p=0.038). ECW and TBW increased significantly (p=0.001 and 0.031) as the increasing stage of CKD. Conclusion The phase angle profile in non-dialysis CKD tends to decrease slightly with increasing CKD stage. ECW and TBW profiles increased as the CKD stage increased, but there was no change in oedema index (ECW/TBW). The FM and FM-I profiles decreased as the CKD stage increased.