

Association of dietary patterns with serum phosphorus in maintenance haemodialysis patients: a cross-sectional study

ABSTRACT

Sources of dietary phosphate differentially contribute to hyperphosphatemia in maintenance haemodialysis (MHD) patients. This cross-sectional study in Malaysia investigated association between dietary patterns and serum phosphorus in MHD patients. Dietary patterns were derived by principal component analysis, based on 27 food groups shortlisted from 3-day dietary recalls of 435 MHD patients. Associations of serum phosphorus were examined with identified dietary patterns. Three dietary patterns emerged: Home foods (HFdp), Sugar-sweetened beverages (SSBdp), and Eating out noodles (EO-Ndp). The highest tertile of patients in HF (T3-HFdp) pattern significantly associated with higher intakes of total protein ($p=0.002$), animal protein ($p=0.001$), and animal-based organic phosphate ($p<0.001$), whilst T3-SSBdp patients had significantly higher intakes of total energy ($p<0.001$), inorganic phosphate ($p<0.001$), and phosphate:protein ratio ($p=0.001$). T3-EO-Ndp patients had significantly higher intakes of total energy ($p=0.033$), total protein ($p=0.003$), plant protein ($p<0.001$), but lower phosphate:protein ratio ($p=0.009$). T3-SSBdp patients had significantly higher serum phosphorus ($p=0.006$). The odds ratio of serum phosphorus >2.00 mmol/l was significantly 2.35 times higher ($p=0.005$) with the T3-SSBdp. The SSBdp was associated with greater consumption of inorganic phosphate and higher serum phosphorus levels.