Serum phosphate optimal timing and range associated with patients survival in haemodialysis: The COSMOS study

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Background. Serum phosphate is a key parameter in the management of chronic kidney
disease-mineral and bone disorder (CKD-MBD). The timing of phosphate measurement is not
standardized in the current guidelines. Since the optimal range of these biomarkers may vary
depending on the duration of the interdialytic interval, in this analysis of the Current management of
secondary hyperparathyroidism: a multicentre observational study (COSMOS), we assessed the
influence of a 2- (midweek) or 3-day (post-weekend) dialysis interval for blood withdrawal on serum
levels of CKD-MBD biomarkers and their association with mortality risk. Methods. The COSMOS

disease-mineral and bone disorder (CKD-MBD). The timing of phosphate measurement is not standardized in the current guidelines. Since the optimal range of these biomarkers may vary depending on the duration of the interdialytic interval, in this analysis of the Current management of secondary hyperparathyroidism: a multicentre observational study (COSMOS), we assessed the influence of a 2- (midweek) or 3-day (post-weekend) dialysis interval for blood withdrawal on serum levels of CKD-MBD biomarkers and their association with mortality risk. Methods. The COSMOS cohort (6797 patients, CKD Stage 5D) was divided into two groups depending upon midweek or post-weekend blood collection. Univariate and multivariate Cox's models adjusted hazard ratios (HRs) by demographics and comorbidities, treatments and biochemical parameters from a patient/centre database collected at baseline and every 6 months for 3 years. Results. There were no differences in serum calcium or parathyroid hormone levels between midweek and post-weekend patients. However, in post-weekend patients, the mean serum phosphate levels were higher compared with midweek patients (5.5 ± 1.4 versus 5.2 ± 1.4 mg/dL, P < 0.001). Also, the range of

serum phosphate with the lowest mortality risk [HR? 1.1; midweek: 3.5-4.9 mg/dL (95% confidence interval, CI: 2.9-5.2 mg/dL); post-weekend: 3.8-5.7 mg/dL (95% CI: 3.0-6.4 mg/dL)] showed significant differences in the upper limit (P = 0.021). Conclusion. Midweek and post-weekend serum phosphate levels and their target ranges associated with the lowest mortality risk differ. Thus, clinical guidelines should consider the timing of blood withdrawal when recommending optimal target ranges for serum phosphate and therapeutic strategies for phosphate control. © 2018 The Author(s).

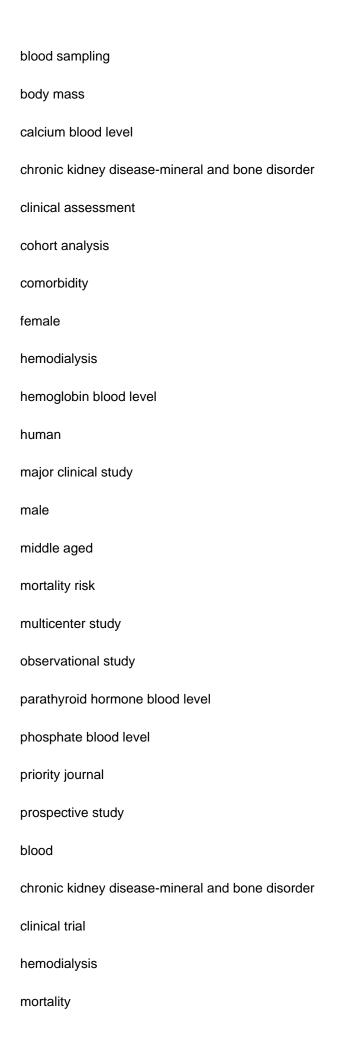
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adult

Article

albumin blood level

all cause mortality



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randomization
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survival rate
Biomarkers
Calcium
Chronic Kidney Disease-Mineral and Bone Disorder
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