

MP455

IS PHOSPHATE DYSREGULATION THE LINK BETWEEN ORAL AND KIDNEY DISEASES?

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INTRODUCTION AND AIMS: Studies have shown a bidirectional relationship between chronic kidney diseases (CKD) & periodontal diseases. A higher rate of decayed teeth, missing teeth and filled teeth are also noted in the CKD patients, as compared to the non-CKD population. Clinical studies are focusing on whether early treatment of periodontal diseases can delay the progression of CKD. Of clinical significance, periodontal disease is treatable, and therefore, is a modifiable risk factor for CKD patients. Since oral inflammation is an additional risk factor for CKD patients, it is important to know what induces higher rates of oral inflammatory lesions in CKD patients. We believe that systemic dysregulation of phosphate homeostasis in CKD patients promotes oral inflammation.

METHODS: Nutritional uptake is recorded. Salivary and plasma phosphate levels are determined.

RESULTS: When phosphate content was analyzed, in saliva and plasma, simultaneously collected from 77 children (10.5 ± 1.8 years), a significant increase of salivary phosphate level was noted in obese children, as compared to children with normal-weight (ANOVA $p < 0.001$). Despite increased salivary phosphate content in obese children, the plasma phosphate levels were normal in the same cohort of children. Moreover, a statistically significant association between increased dietary phosphate consumption (adjusted with calorie intake) and elevated salivary cytokine level (IL-1 β) was noted in inflammatory oral diseases.

CONCLUSIONS: Summarizing the available information, there is a biological basis to believe that dysregulation of phosphate homeostasis could adversely affect the oral functions, by promoting periodontal and systemic inflammation. In addition, the occurrence of elevated salivary phosphate levels without serum changes (of phosphate levels) could be of diagnostic value, particularly in identifying the population at risk of developing CKD or in monitoring involvement of CKD.