The Randall's plaque and kidney stones epidemic: new physiopathological approaches involving NMR spectroscopy.

Winh-Chhunn Teh*[1]

[1]Laboratoire de Chimie de la Matière Condensée de Paris (LCMCP) – Collège de France, Sorbonne Universite : UMR7574, Centre National de la Recherche Scientifique : UMR7574 – Sorbonne Université4 place Jussieu75252 Paris cedex 05, France

Résumé

Nephrolithiasis, else known as kidney stone (KS) disease, refers to concretions nucleated at the tip of the renal papilla. Those concretions, in majority made of calcium oxalate, are believed to start from an initial calcium phosphate deposit called the Randall's plaque (RP), in reference to Alexander Randall who first described it. The occurrence of nephrolithiasis in industrialized countries is estimated of about 10 % and its prevalence has been ever increasing for the past fifty years and with a shift to younger patients. Though an extensive study of kidney stones' crystals put on the trail of an imbalanced diet leading to hypercalciuria and hyperoxaluria, the precise mechanism of the stone formation remain unknown. Organic-inorganic interfaces in RP and KS are particularly tricky to characterize. Routine FTIR and SEM are insufficient to provide an in-depth understanding of the structural composition of those bio-nanocomposites. From this perspective, NMR techniques are interesting tools to give some insights with a sensitivity to short/medium-range order.

*Intervenant