

FP824

RENAL WATER HANDLING IN A COHORT OF HYPERCALCIURIC PATIENTS DIAGNOSED IN THE PEDIATRIC AGE. A LONGITUDINAL STUDY

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INTRODUCTION: Background. The question whether idiopathic hypercalciuria (IH) impairs renal water handling is controversial. Up to our knowledge, this is the first longitudinal study on renal water handling (RWH) in patients diagnosed with IH in the pediatric age, followed-up until adulthood [median follow-up time 18.2 years (IR 12.2-19.3 years)].

METHODS: Method. The study included twenty nine patients (7M, 22F) older than 24 years (mean 28.2 ± 2.9 years; range: 24.1-35.9), who had been diagnosed with IH in the pediatric age (mean 7.6 ± 3.2 years; range: 1-14). Maximum urine osmolality (UOsm) and/or urine volume adjusted for 100 ml GFR (V/GFR) were determined both in the pediatric and adult age. Additionally, plasmatic creatinine, sodium and uric acid were measured and the citrate/creatinine ratio and calcium/citrate ratio were calculated at both ages whenever possible. Patients underwent renal and bladder ultrasound studies at both ages.

RESULTS: Results. Impaired RWH was found in 9/29 pediatric patients (31%) (four ones presenting low maximum UOsm and five ones, high V/GFR). In adulthood, impaired RWH was found in 7/29 patients (24.1%) (six with low maximum UOsm and one with high V/GFR). When compared with pediatric patients, adults showed lower V/GFR, calcium/creatinine ratio and citrate/creatinine ratio, but higher plasmatic creatinine and uric acid levels and calcium/citrate ratio. No difference was found in maximum UOsm between pediatric and adult age results. However, UOsm was significantly lower in adults who suffered from renal colic, as compared with those who did not ($p=0.04$).

CONCLUSIONS: Impaired RWH occurred in about one third of IH patients and remained unchanged 20 years after diagnosis. We postulate that such results might be due to compliance with recommended protective dietary measures and pharmacological treatment administered at the time of IH diagnosis in the pediatric age.