URINARY MAGNESIUM EXCRETION IN DIFFERENT TYPES OF HYPERCALCIURIA WITH RECURRENT CALCAREOUS NEPHROLITHIASIS

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Tubular reabsorption of Ca and Mg appears to be correlated. In 12 renal (R), 16 absorptive (A), 12 tubulophosphaturic (TP) hypercalciuric patients, and in 15 normal subjects (N) urinary excretion of Ca (CaE) and MgE (mg/100ml GFR) has been studied before and after a Ca load (CL 1g per os).

![Diagram](image_url)

Figure 1. Relationship between urinary calcium (CaE) and magnesium (MgE) excretion in 15 normal fasting subjects and in 36 RCN hypercalciuric patients. Regression line (solid line) and 95% confidence limits (shaded area) for normal subjects are indicated
MgE significantly increased after CL in all cases (N: from 0.025 ± 0.009 to
0.045 ± 0.01, + 80%, p < 0.001; RCN patients from 0.037 ± 0.01 to 0.056 ± 0.02,
+ 58%, p < 0.001): the increase was + 78% in A (from 0.034 ± 0.01 to 0.061 ±
0.02, p < 0.001) and in TP (from 0.031 ± 0.008 to 0.056 ± 0.01, p < 0.001), but
only + 4% in R (from 0.045 ± 0.01 to 0.047 ± 0.01, NS). The MgE and CaE per-
cent increases were correlated in all cases (N: r = 0.093, p < 0.001; RCN patients:
r = 0.67, p < 0.001). Basal MgE was higher in all RCN patients than in N
(p < 0.001); moreover it was higher in R than in A and TP (p < 0.025). However,
when basal MgE and CaE were plotted together, MgE fell into the 95% confidence
limits of the normal MgE/CaE relationship in A, but below these limits in R and
TP (Figure 1).

A high CaE with an abnormally low MgE in R and TP suggests a reduced tubu-
lar Ca reabsorption at the distal nephron, where distally delivered Mg, at differ-
ence from Ca, is not further reabsorbed [1].

Reference