EFFECT OF CHAETHOMELLLIC ACID ON RENAL FUNCTION IN A RAT MODEL OF CHRONIC RENAL FAILURE

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INTRODUCTION

Chaethomellic acid (AC) is a highly specific inhibitor of ras farnesyl-protein transferase. The aim of this study has been to evaluate the effect of chronic treatment with chaethomellic acid (CA) on the renal function of rats with renal failure induced by renal mass reduction.

MATERIALS AND METHODS

Animal care and treatment were conducted in conformity with institutional guidelines that are in compliance with international laws and politics. Male Wistar rats were subjected to 5/6 nephrectomy (RMR) or sham-operated (SO). One week after surgery, rats have been randomized and placed in four experimental groups: RMR: RMR rats without treatment (n=13); RMR+AC: RMR rats treated with AC (n=13); SO: SO rats without treatment (n=13); SO+AC: SO rats treated with AC (n=13). AC was intraperitoneally administered in a dose of 0.23 µg/Kg three times a week for six months. Creatinine, blood urea nitrogen (BUN), electrolytes and protein were measured in serum and/or urine by routine laboratory techniques. The differences between groups were evaluated by one-way analysis of variance (ANOVA) followed by Bonferroni post hoc tests. All data are presented as the mean ± SD and were considered significant if p<0.05.

RESULTS

Renal function parameters are shown in table 1. BUN (figure 1), creatinine (figure 2) and urinary protein excretion (figure 3) were significantly lower and creatinine clearance (figure 4) was significantly higher in the SO and SO+AC groups when compared with the RMR and RMR+AC groups. There were no significant differences in creatinine, urinary protein excretion and creatinine clearance between the RMR and RMR+AC groups. However, the RMR+AC group showed significantly lower BUN and lower creatinine and urinary protein excretion, and higher creatinine clearance than the RMR group.

CONCLUSIONS

These results suggest that in a model of renal failure induced by RMR, six months of treatment with chaethomellic acid may have some beneficial effect on renal function.