EFFECTS OF COMBINATION OF CYCLOSPORINE WITH LOSARTAN OR ENALAPRIL ON KIDNEY FUNCTION IN UREMIC RATS

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Long-term treatment with cyclosporine in solid organ transplantation has been shown to be associated with the development of hypertension and nephrotoxicity. Angiotensin-converting enzyme inhibitors have well-known nephroprotective properties and may prevent cyclosporine A (CYA)-induced hypertension. Angiotensin receptor 1 antagonists have similar properties. The purpose of this study was to investigate if losartan or enalapril could be administered with CYA to reduce its nephrotoxic effect in uremic rats. The studies were performed on the following groups of rats: group I – control; group II – control rats + losartan; group III – control rats + CYA; group IV – uremic rats; group V – uremic rats + losartan; group VI – uremic rats + CYA; group VII – uremic rats + losartan + CYA, group VIII – control rats + enalapril; group IX – control rats + enalapril + CYA; group X – uremic rats + enalapril; group XI – uremic rats + enalapril + CYA. Pretreatment with CYA, losartan or enalapril in uremic rats resulted in a significant increase in urea and creatinine levels and a decrease in hematocrit. The same effect was observed when uremic rats were given CYA + losartan or CYA + enalapril. Pretreatment with losartan was associated with the increase in the level of CYA much higher than with CYA treatment alone. Similarly, pretreatment with enalapril resulted in a significant increase in CYA concentration in both groups of rats given CYA: uremic and non-uremic. Results of our study show that the treatment with cyclosporine and a combination of losartan or enalapril results in an increase in creatinine and urea levels and a decrease in hematocrit. Therefore, physicians should exercise caution, when they give losartan and enalapril to kidney allograft recipients treated with cyclosporine, particularly with impaired allograft function.

Key words: cyclosporine, enalapril, losartan, uremia

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