

The role of glomerular filtration rate on the natriuretic response to acute saline infusion.

Hikomichi Kumagai, Masaharu Ohura* and Akira Hishida*

Department of Clinical Nutrition, School of Food and Nutritional Sciences, University of Shizuoka

*First Department of Medicine, Hamamatsu University School of Medicine

Summary

We have reported that the natriuretic response to acute saline infusion, 15ml/kg BW for 1 hour, was decreased in the aged and the attenuated natriuretic response was associated with the early decline of fractional sodium excretion(FENa), an index of tubular sodium reabsorption. However, the role of glomerular filtration rate(GFR) on the decreased natriuretic response to acute saline loading in the aged was remained unsolved. To answer this question, we compared the natriuretic response to acute saline loading between the aged, the young healthy subjects and the young patients with renal disease whose GFR were significantly less than the young healthy subjects and comparable with the aged.

The total amounts of UNaV for four hours after starting the infusion were $21.9 \pm 4.7\%$ of the infused sodium in the young healthy subjects, $14.1 \pm 3.4\%$ in the aged and $10.3 \pm 2.0\%$ in the young patients. UNaV showed a sluggish increase following acute saline infusion and maintained lower values for four hours in the young patients when compared with other two groups. In the young patients and the young healthy subjects, however, UNaV and FENa exhibited almost similar time courses without a downfall as shown in the aged. Therefore, the early decline of UNaV and FENa is not related to the low GFR and might be specific in the aged. The early decline of natriuretic response in the aged might be caused by the concomitant decline in plasma ANP.