

ANTI-INFLAMMATORY EFFECT OF WHITE WINE IN CKD PATIENTS AND HEALTHY VOLUNTEERS

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OBJECTIVES

Moderate wine drinkers have lower mortality rates than non-drinkers and heavy drinkers in epidemiologic studies. The beneficial effects of red wine are thought to be dependent to the polyphenol compounds as resveratrol with a potent antioxidant activity. In this study we investigated if white wine, that contains simple phenols such as tyrosol (Tyr) and hydroxytyrosol (OH-Tyr), characteristic of also extra-virgin olive oil, may share antioxidant and inflammatory properties.

METHODS

The effect of white wine and extra-virgin olive oil on inflammatory markers was evaluated in 10 healthy volunteers and in 10 patients with CKD (chronic kidney disease) K-DOQI stage III-IV in a prospective, single blind, randomized, cross-over trial. After two weeks of wash-out from alcoholic beverages, subjects were randomized to a cross-over design A-B or B-A of 2 week treatment with white wine (4 ml/Kg body weight, 0.48 g/kg of alcohol 12%, corresponding to 2-3 glasses/daily) and extra-virgin olive oil (Treatment A) or extra-virgin olive oil alone (Treatment B). The two study periods were separated by a two week wash out period. At baseline and at the end of each treatment plasma levels of inflammatory markers C-reactive protein (CRP), interleukin-6 (IL-6), tumour necrosis factor-alpha (TNF-alpha) and interleukin-8 (IL-8) concentration were determined.

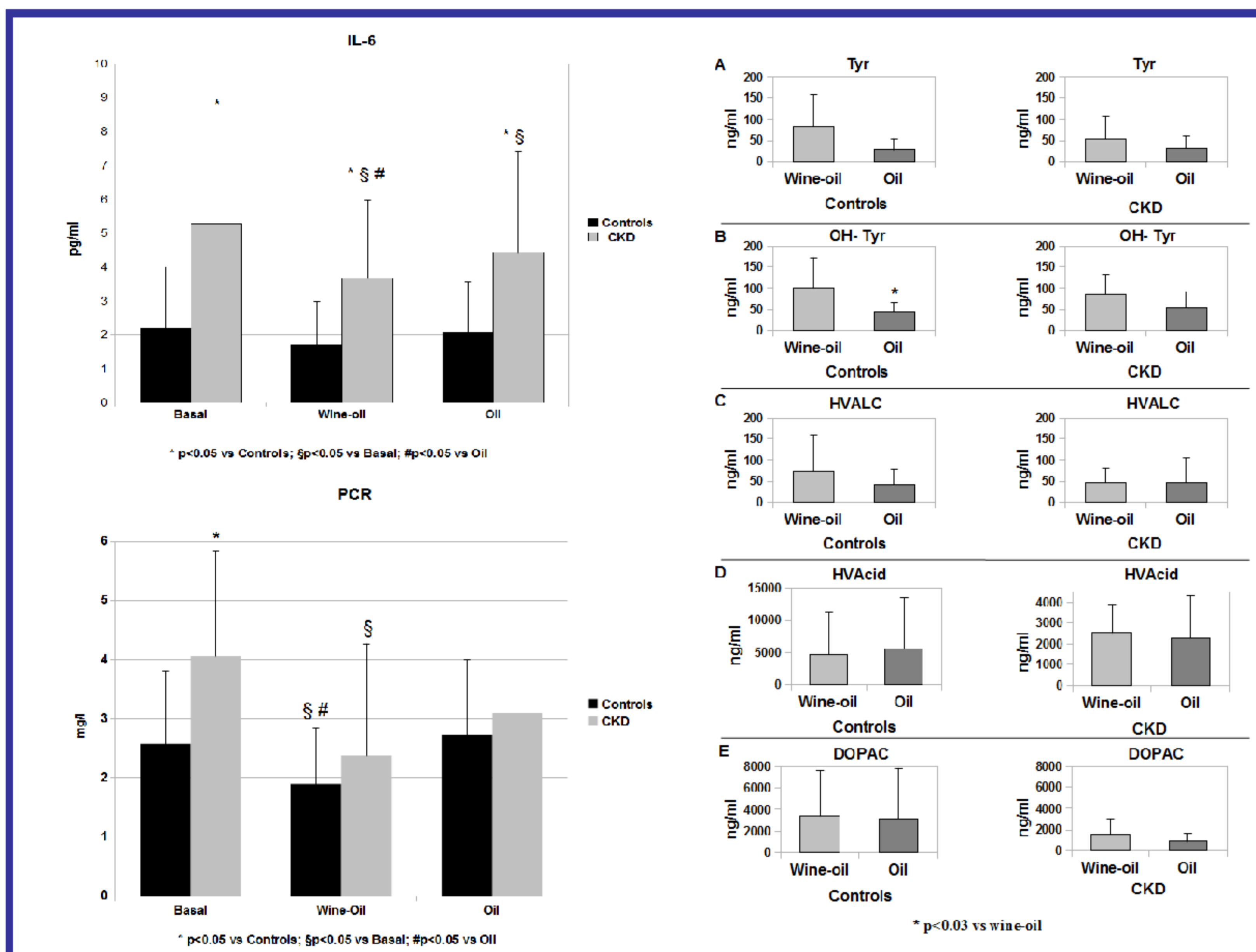
Urinary levels of Tyr, OH-Tyr and their metabolites were measured at the same time.

RESULTS

During combined consumption of white wine and extra-virgin olive oil (treatment A) plasma levels of CRP and IL-6 decreased from $4,1 \pm 1,8$ to $2,4 \pm 1,9$ mg/l ($p < 0,05$) and from $5,3 \pm 3,2$ to $3,4 \pm 2,3$ mg/l ($p < 0,05$) in CKD patients (Fig. 1 left).

CRP decreased from $2,6 \pm 1,2$ to $1,9 \pm 0,9$ mg/l ($p < 0,05$) and IL-6 from $2,2 \pm 1,8$ to $1,7 \pm 1,3$ mg/l ($p = ns$) in healthy volunteers (Fig. 1 left).

No significant variation vs baseline was observed during treatment B. A significant increase in urinary Tyr and OH-Tyr was observed during treatment A (white wine and extra-virgin olive oil) (Fig. 1 right).



CONCLUSIONS

Results suggest a positive effect of the combination of white wine and extra-virgin olive oil intake in the context of a habitual diet, on plasma markers of chronic inflammation. IL6 and CRP are significantly reduced in CKD patients during the combined consumption. These data in humans confirm the results of previous reports showing in vitro and in vivo anti-inflammatory activity of Tyr and OH-Tyr. Moreover, the increased urinary concentration of Tyr, OH-Tyr and their metabolites after white wine and olive oil consumption confirms the adherence of CKD patients and healthy volunteers to prescribed diet.

References

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