

## Abstract

### **The effect of curcuminoids on renal function and oxidative stress in diabetic nephropathy: A randomized controlled trial**

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#### **Background**

Oxidative stress plays an important role in diabetic nephropathy. The antioxidant property of curcuminoids is expected to slow disease progression but limited data from randomized controlled trials are available to support the use of this drug.

#### **Methods**

We enrolled 40 diabetic nephropathy patients aged 18-70 years who had the proteinuria  $\geq 30$  mg/g Cr, eGFR  $> 30$  ml/min, well blood pressure control; systolic  $\leq 135$  and diastolic  $\leq 80$  mmHg, fairly controlled fasting plasma glucose of 70-130 mg/dl or HbA1c  $\leq 8\%$ . We then randomly assigned them to receive the curcuminoids 1,500 mg/day or placebo for 3 months. The primary outcomes assessment was renal function evaluated by eGFR and proteinuria. Secondary outcomes were plasma and urine malondialdehyde (MDA) which were oxidative stress parameters and inflammatory markers of plasma TNF- $\alpha$  and hs-CRP.

#### **Results**

The curcuminoids affected the renal function by decreasing tendency of proteinuria & improving eGFR but no statistically significance. For oxidative stress and inflammatory parameters were also had a trend of reduction but no statistically significance. The subgroup analysis of microalbuminuria (30-300 mg/g Cr) and overt proteinuria ( $> 300$  mg/g Cr) showed no difference in primary and secondary outcomes. The microalbuminuria volunteers were found that the curcuminoids still changed primary and secondary outcomes insignificantly. However, the urine MDA decrement of overt proteinuria subgroup was statistically significant in therapy group ( $P=0.04$ ).

#### **Conclusions**

This is the first randomized controlled trial showing the benefit of curcuminoids in eGFR improvement, proteinuria decrement and oxidative stress reduction in diabetic nephropathy.