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Oxidised LDL in newly diagnosed type 2 diabetes mellitus and impaired glucose toleranceL MacDonald-Wicks, LZ Gibson, DM Godfrey, JM Green, BP Horan, KL Monger,
RM Wischer, ML Garg*Nutrition & Dietetics, University of Newcastle, Callaghan, NSW 2308*

Background - It is recognised that individuals with diabetes have a 2-3 fold increase in mortality secondary to coronary artery disease¹ and individuals with impaired glucose tolerance (IGT) also share this risk.² Factors that contribute to the endothelial cell dysfunction associated with the initiation of atherosclerosis include oxidative stress.

Objective - The present study examined baseline levels of biomarkers associated with atherosclerosis in people with newly diagnosed type 2 diabetes.

Design - Twelve subjects were recruited with either type 2 diabetes or impaired glucose tolerance diagnosed within the last 3 months, with control subjects (12) sex matched. Biomarkers and anthropometry measured included oxidized LDL, fatty acids, HbA_{1c}, blood glucose level, insulin, C-reactive protein (CRP), weight, height, waist circumference, vitamins A and E.

Outcomes - The results showed significant differences between waist circumference ($p=0.005$), Body mass index (BMI) ($p=0.01$), CRP ($p=0.0019$) and triglycerides ($p=0.035$). While a small difference between oxidized LDL levels was observed, it was not statistically significant. Positive correlations emerged between oxidized LDL and HbA_{1c} ($r=0.442$, $p=0.031$), oxidized LDL and triglycerides ($r=0.569$, $p=0.004$), and oxidized LDL and CRP ($r=0.441$, $p=0.031$).

Conclusion - It is concluded that although no statistically significant difference in oxidized LDL was found between the two groups, the positive correlations found with oxidized LDL and HbA_{1c}, CRP and triglycerides warrant further investigation. The results showed a relationship between the biomarkers of diabetes mellitus and a serum oxidized LDL level.

1. Stamler J, Neaton JD and Wentworth D. Diabetes, other risk factors, and a 12-year mortality for men screened in the Multiple Risk Factor Intervention Trial. *Diabetes Care* 1993;16:434-44.
2. Celentano OV, Tammamo P et al Early abnormalities of cardiac function in non-insulin-dependant diabetes mellitus and impaired glucose tolerance. *Amer J Cardiol* 1995;76:1173-76.

Inhibition of platelet aggregation from people with type 2 diabetes mellitus following consumption of tomato juice

SA Lazarus, ML Garg

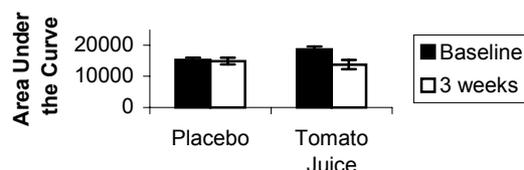
Nutrition and Dietetics, University of Newcastle, Callaghan NSW 2308

Background - Platelet hyperreactivity is one of the metabolic abnormalities found in type 2 diabetes mellitus and contributes to this populations increased risk of developing cardiovascular complications. Recently, clarified tomato juice has been shown to inhibit human platelet aggregation *in vitro*¹ and in an animal model of thrombosis²

Objective - The aim of this study was to determine whether the consumption of a clarified tomato juice could inhibit *ex vivo* platelet aggregation in patients with type 2 diabetes mellitus or impaired glucose tolerance.

Design - Twenty patients were randomly assigned to consume 250 mL of clarified tomato juice or placebo tomato-flavoured beverage daily for 3 wks. Fasting blood samples were collected at baseline and following supplementation. Platelet aggregation was monitored for 5 min following stimulation of platelet rich plasma (500 μ L) with collagen (1 mg/L).

Outcomes - Following supplementation with tomato juice, platelet aggregation was significantly lower as compared to baseline ($P=0.001$) and compared with the placebo group ($P=0.002$). No difference was observed in the placebo group between baseline and post-supplementation ($P=0.85$).



Conclusion - Consumption of tomato juice may provide a safe, dietary alternative to reduce platelet activity; however, larger randomised controlled trials are needed to determine whether tomato juice can improve cardiovascular outcomes in patients with type 2 diabetes mellitus.

1. Lazarus SA, Garg ML. Tomato extract inhibits human platelet aggregation *in vitro* without increasing basal cAMP levels. *Int J Food Sci Nutr.* 2004;in press.
2. Yamamoto J, Taka T, Yamada K, et al. Tomatoes have natural anti-thrombotic effects. *Br J Nutr.* 2003;90:1031-8.