**Effect of Chromium Picolinate on Atherosclerotic Lesion Regression in Metabolic Syndrome**

Metabolic syndrome (MetS) refers to a cluster of risk factors that include insulin resistance, abdominal obesity, hyperglycemia, and dyslipidemia. Atherosclerotic disease, a major player in the development of several cardiovascular complications, is the leading cause of increased morbidity and mortality in MetS. Prevalence of atherosclerotic complications increases two- to-four-fold in individuals with MetS. Therapeutic management of vascular disease substantially burdens the national health care expenditure. Consequently, there remains an unmet need for cost-effective alternative approaches. Trivalent chromium (Cr3+) is a mineral nutrient with long-standing glycemic and cardiovascular benefits. However, lack of a mechanistic understanding of Cr3+ action has stalled its advancement in clinical medicine. Notably, it is currently unknown whether Cr3+ can regress lesions once formed, a highly clinically relevant goal affecting vascular health of individuals with MetS. The overarching aim of this proposal was to interrogate whether chromium picolinate, an over-the-counter bioavailable form of Cr3+, can regress atherosclerotic lesions in MetS. This was tested in a pre-clinical mouse model of combined MetS and atherosclerosis (KKAy+/-/ApoE-/-) using histochemical microscopic studies and biochemical assays. The results point to a possible trend in the regression of atherosclerotic lesion formation. However, further investigation will be necessary to confirm the results.

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