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ACCEPTED MANUSCRIPT

An association of smoking with serum urate and gout: a health paradox

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Abstract

The potential effect of cigarette smoking on levels of serum urate and risk of gout has been considered by a large number of studies, either as the primary variable of interest or as a covariate. Here we systematically review the published evidence relating to the relationship of smoking with serum urate, hyperuricaemia and gout. Many studies have reported that smoking reduces serum urate, however the evidence has not been conclusive with other studies pointing to the opposite or no effect. It has also been suggested that smoking reduces the risk of gout, although there is some evidence to contradict this finding. A consensus has yet to be reached as to the effect of smoking on serum urate levels and the risk of gout.

Keywords: Smoking, urate, hyperuricaemia and gout

1. Introduction

Gout is a common form of arthritis, caused by deposition of monosodium urate (MSU) crystals within joint structures. Gout is characterised by recurrent episodes of acute inflammatory arthritis, known as gout "flares" [1]. MSU crystal deposition occurs as a result of hyperuricaemia, defined as serum urate >408 µmol/L, the lowest concentration at which MSU crystals form *in vitro*, at physiologic pH and

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