

Extracoronary arterial calcification in humans is increased after chronic coumarin treatment

Claudiu STOICESCU, Assistant Professor

Emergency University Hospital, Bucharest, Romania

Cardiovascular risk is higher for patients with vascular calcification. Vitamin K-dependent matrix Gla protein (MGP) is important in inhibiting calcification and is vitamin K dependent. A first study showing a relationship between coumarins and extracoronary calcification has been performed using the database of the southern Dutch thrombosis services. 19 patients younger than 55 years who had no other cardiovascular risk factors and who had used coumarins for more than 10 years were compared with 18 matched healthy controls. MGP was measured, and a plain x-ray of the thighs was taken to assess femoral arterial calcifications. Univariate analysis showed a correlation between femoral artery calcification and coumarin use ($r = .515$, $P < .001$) and plasma dp-ucMGP levels ($r = .585$, $P < .001$). In multiple regression analysis, coumarin

use and dp-ucMGP levels were independently associated with the presence of calcification, and were also independent of known or accepted modifiers.

The only studied patients in this trial are patients without other cardiovascular disease, a relatively young population (so no age bias), and this is a very strong point of it as well as the demonstration that coumarin use affected calcification independently of other risk factors.

Even there are some limitation as study result was obtained in a relatively small and selected population, or plain X-ray is not the most sensitive technique to detect arterial calcification, this is the first human study which conclude that long-term use of coumarins is associated with enhanced extracoronary vascular calcification, possibly through the inhibition of MGP carboxylation. ■

Comment on a paper:

Roger JM, W Rennenberg et al – Chronic coumarin treatment is associated with increased extracoronary arterial calcification in humans. *Blood* 2010; 115:5121-1230