EDITORIAL

Is baldness a risk factor for coronary heart disease?

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DESPITE ADVANCES ACROSS THE SPECTRUM OF HEALTHCARE SINCE THE DAWN OF THE NEW millennium coronary heart disease remains a major cause of global morbidity and mortality. Those at high risk of coronary disease can be aggressively managed, for example with antihypertensive or lipid-lowering therapy, to try to prevent the onset of clinical coronary events but identifying such patients can be challenging.

A recent study has potentially identified another risk factor for coronary disease, that of male pattern baldness (androgenetic alopecia). This is the most common cause of hair loss and the authors estimate that it affects around 30–40% of adult men rising to 80% by the age of 80 years. Male pattern baldness is a heritable, androgen-dependent condition characterised by varying degrees of hair thinning or loss mainly at the vertex and the frontal areas of the scalp.

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The study was a meta-analysis of observational studies sourced from Medline and the Cochrane Library. Studies were included if they reported risk estimates for coronary heart disease related to baldness.

Baldness was defined according to the description in the history and/or on the basis of terms such as male pattern hair loss. Studies were excluded that analysed men with other types of baldness such as alopecia areata or scarring alopecia. Baldness was further classified by the Hamilton-Norwood scale, which is the most commonly used classification of male pattern baldness worldwide. From 850 possible studies three cohort and three case controlled studies with 36,990 patients were included in the final analysis.

In the cohort studies, there was an increased risk of coronary disease with severe baldness compared with those without baldness; adjusted RR 1.32 (95% CI:1.08-1.63, P = 0.008). Analysis of younger men (< 55 or ≤ 60 years) showed a similar association: RR 1.44 (95% CI:1.11-1.86, P = 0.006).

In studies employing the modified Hamilton scale, vertex baldness was increasingly associated with coronary disease depending on the severity of baldness: severe vertex baldness, RR 1.48 (95% CI:1.04-2.11, P = 0.03); moderate, RR 1.36 (95% CI:1.16-1.58, P < 0.001); and mild, RR 1.18 (95% CI:1.04-1.35, P < 0.001).

Interestingly, frontal baldness was not associated with coronary disease RR 1.11 (95% CI: 0.92-1.32, P = 0.28).

The authors conclude that vertex baldness is associated with an increased risk of coronary heart disease and the strength of this association is dependent on the severity of such baldness. This association appears to hold true for younger patients.

This leads on to questions regarding the underlying mechanism linking baldness and atherosclerosis. Perhaps male pattern baldness is a manifestation of underlying conditions such as the metabolic syndrome, hypertension and the deleterious vascular effects of smoking. Hyperinsulinaemia found in insulin-resistant states can lead to scalp microvascular vasoconstriction with impaired delivery of nutrients to hair follicles. Insulin can also augment the action of dihydrotestosterone on hair follicle miniaturisation which could be further compounded by an increase in scalp androgen receptors and higher serum levels of both total and free testosterone. Furthermore, chronic inflammatory states can affect hair growth and are associated with atherosclerosis.

How should we use this information in everyday practice? Certainly it should prompt careful evaluation of other cardiovascular risk factors but to what extent it should modify established cardiovascular risk scores is unclear until further evidence is available.

Clinicians must also be mindful of how common male pattern baldness is and the current uncertainty of the role of screening for coronary disease in asymptomatic populations. However, this is an interesting observation and despite the small number of studies included the cohorts had a long period of follow up, 11-14 years. I am sure that these findings will provide impetus for further study.

REFERENCE
1 Yamada T, Hara K, Umematsu H et al. Male pattern baldness and its association with coronary heart disease: a meta-analysis. *BMJ Open* 2013;3:e002537.doi:10.1136/bmjopen-2012-002537

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