Abstracts from Global Literature:
Metabolic Syndrome in Androgenetic Alopecia

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☞ *Metabolic Syndrome in Androgenic Alopecia*

Gopinath H, Upadya GM. Indian J Dermatol Venereol Leprol 2016;82:404-8

Background: Androgenic alopecia has been associated with an increased risk of coronary heart disease in various studies. The relationship between androgenic alopecia and metabolic syndrome, a known risk factor for atherosclerotic cardiovascular disease, is still poorly understood. *Aim:* To study the association between metabolic syndrome and early-onset androgenic alopecia. *Methods:* A hospital-based analytical cross-sectional study was done on men in the age group of 18–55 years. Eighty five clinically diagnosed cases with early-onset (<35 years) androgenic alopecia of Norwood grade III or above, and 85 controls without androgenic alopecia were included. Data collected included anthropometric measurements, arterial blood pressure and history of chronic diseases. Fasting blood and lipid profile were determined. Metabolic syndrome was diagnosed as per the new International Diabetes Federation criteria. Chi-square and Student's t-test were used for statistical analysis using Statistical Package for the Social Sciences (SPSS) version 17.00. *Results:* Metabolic syndrome was seen in 19 (22.4%) patients with androgenic alopecia and 8 (9.4%) controls (P = 0.021). Abdominal obesity, hypertension and lowered high-density lipoprotein were significantly higher in patients with androgenic alopecia versus their respective controls. *Limitations:* The limitations of our study include small sample size in subgroups and the lack of evidence of a temporal relationship between metabolic syndrome and androgenic alopecia. *Conclusion:* A higher prevalence of metabolic syndrome is seen in men with early-onset androgenic alopecia. Early screening for metabolic syndrome and its components is beneficial in patients with early-onset androgenic alopecia.

☞ *Male Androgenetic Alopecia and Cardiovascular Risk Factors: A Case-Control Study*

Arias-Santiago S, Gutiérrez-Salmerón MT, Castellote-Caballero L et al. Actas Dermosifiliogr. 2010 Apr;101(3):248-56.

Objectives: The objective of this study was to determine the prevalence of metabolic syndrome and carotid arteriosclerosis in patients with early-onset androgenetic alopecia. *Patients and Methods:* Seventy men were studied, 35 with diagnosis of early-onset (before 35 years of age) androgenetic alopecia and 35 control subjects who consulted for other skin conditions. In both groups, the criteria for metabolic syndrome according to the Adult Treatment Panel-III were studied (obesity, triglycerides, high-density lipoprotein cholesterol, systolic and diastolic blood pressure, and blood glucose), presence of atheromatous plaques, and carotid intima-media thickness using Doppler ultrasonography. Other cardiovascular risk factors, hormones, and acute-phase reactants were also analyzed. *Results:* Criteria for metabolic syndrome were met by 57.1% of the patients with androgenetic alopecia compared to 14.3% of the controls (P<0001). Thirty-four percent of the patients with androgenetic alopecia had atheromatous plaques compared to 8.6% of the controls (P=.018). In an independent correlation analysis, abdominal obesity, systolic blood pressure, triglycerides, and blood glucose levels were

significantly greater among patients with androgenetic alopecia. Testosterone and sex hormone binding globulin levels were similar in the 2 groups whereas insulin and aldosterone levels were higher in patients with androgenetic alopecia (P<05).

Conclusions: The high frequency of metabolic syndrome and carotid atheromatous plaques in patients with androgenetic alopecia suggests cardiovascular screening should be done to enable early detection of individuals at risk and initiation of preventive treatment before cardiovascular disease becomes established.

✍ *A Comparative Study of Dyslipidaemia in Men and Women with Androgenic Alopecia*

Arias-Santiago, S., Gutiérrez-Salmerón, M.T., Buendía-Eisman, A. et al Acta Derm Venereol 2010; 90: 485–487

Several studies have analyzed the relationship between androgenetic alopecia and cardiovascular disease (mainly heart disease). However few studies have analyzed lipid values in men and women separately. This case-control study included 300 patients consecutively admitted to an outpatient clinic, 150 with early onset androgenetic alopecia (80 males and 70 females) and 150 controls (80 males and 70 females) with other skin diseases. Female patients with androgenic alopecia showed significant higher triglycerides values (123.8 vs 89.43 mg/dl, p = 0.006), total cholesterol values (196.1 vs 182.3 mg/dl, p = 0.014), LDL-C values (114.1 vs 98.8 mg/dl, p = 0.0006) and lower HDL-C values (56.8 vs 67.7 mg/dl, p <0.0001) versus controls respectively. Men with androgenic alopecia showed significant higher triglycerides values (159.7 vs 128.7 mg/dl, p = 0.04) total cholesterol values (198.3 vs 181.4 mg/dl, p = 0.006) and LDL-C values (124.3 vs 106.2, p = 0.0013) versus non-alopecic men. A higher prevalence of dyslipidemia in women and men with androgenic alopecia has been found. The elevated lipid values in these patients may contribute, alongside other mechanisms, to the development of cardiovascular disease in patient with androgenic alopecia.

✍ *Baldness and Coronary Heart Disease Rates in Men from the Framingham Study*

Herrera CR, D'Agostino RB, Gerstman BB, et al. Am J Epidemiol 1995;142:828-33.

Abstract: The authors assessed the relation between the extent and progression of baldness and coronary heart disease. Baldness was assessed twice, in 1956 and in 1962, in a cohort of 2,017 men from Framingham, Massachusetts. Extent of baldness was classified in terms of number of bald areas: no areas bald (n =153), one area bald (n=420), two areas bald (n=587), and all areas bald (n=857). Men who were assessed both times and who had two or fewer bald areas during the first evaluation were classified into one of three groups: "mild or no progression," "moderate progression," or "rapid progression." The cohort was followed for up to 30 years for new occurrences of coronary heart disease, coronary heart disease death, cardiovascular disease, and death due to any cause. The relations between the extent and progression of baldness and the aforementioned outcomes were assessed using a Cox proportional hazards model, adjusting for age and other known cardiovascular disease risk factors. Extent of baldness was not associated with any of the outcomes. However, the amount of progression of baldness was associated with coronary heart disease occurrence (relative risk (RR)=2.4, 95% confidence interval(Cl) 1.3–4.4), coronary heart disease mortality (RR=3.8, 95% Cl 1.9–7.7), and all-cause mortality (RR=2.4, 95% Cl 1.5–3.8). Rapid hair loss may be a marker for coronary heart disease.

✍ *Male Pattern Baldness and Coronary Heart Disease: the Physicians' Health Study*

Lotufo PA, Chae CU, Ajani UA et al Arch Intern Med.2000 Jan 24;160(2):165-71.

Objective: To examine the association between male pattern baldness and the risk of coronary heart disease (CHD) events. *Design, Setting, and Participants:* Retrospective cohort study among 22,071 US male physicians aged 40 to 84 years enrolled in the Physicians' Health Study. Of these, 19,112 were free of CHD at baseline and completed a questionnaire at the 11-year follow-up concerning their pattern of hair loss at age 45 years. Response options included no hair loss, frontal baldness only, or frontal baldness with mild, moderate, or severe vertex baldness.

Main Outcome Measures: Coronary heart disease events defined as nonfatal myocardial infarction (MI), angina pectoris, and/or coronary revascularization.

Results: During 11 years of follow-up, we documented 1446 CHD events in this cohort. Compared with men with no hair loss, those with frontal baldness had an age-adjusted relative risk (RR) of CHD of 1.09 (95% confidence interval [CI], 0.94-1.25), while those with mild, moderate, or severe vertex baldness had RRs of 1.23 (95% CI, 1.05-1.43),

1.32 (95% CI, 1.10-1.59), and 1.36 (95% CI, 1.11-1.67), respectively (P for trend, <.001). Multivariate adjustment for age, parental history of MI, height, body mass index (weight in kilograms divided by the square of the height in meters as a continuous variable), smoking, history of hypertension, diabetes, high cholesterol level, physical activity, and alcohol intake did not materially alter these associations. Results were similar when nonfatal MI, angina, and coronary revascularization were examined separately, and when events were analyzed among men older and younger than 55 years at baseline. Vertex baldness was more strongly associated with CHD risk among men with hypertension (multivariate RR, 1.79; 95% CI, 1.31-2.44) or high cholesterol levels (multivariate RR, 2.78; 95% CI, 1.09-7.12).

Conclusion: Vertex pattern baldness appears to be a marker for increased risk of CHD events, especially among men with hypertension or high cholesterol levels.