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Factors Influencing Atherogenic Indices in Type 2 Diabetic women in Northwestern Algeria

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Background: Type 2 diabetic women are at higher risk of developing atherogenic dyslipidemia. The major possible risk factors are obesity, abdominal fat accumulation and poor glycaemic control. However, menopause-related changes could be another determinant. The aim of this study was to evaluate the interrelationships of these risk factors and their independent effects on atherogenic indices in type 2 diabetes women.

Methods: A prospective, cross-sectional study, which includes 160 women agreed to participate in this study. Anthropometrics, biochemical parameters and blood pressure were measured. Atherogenic indices - total cholesterol to high-density lipoprotein cholesterol ratio (TC/HDL) and apolipoprotein (apo) B-to-apo A1 ratio, were calculated. Individual risk factors were examined in relationship to these atherogenic indices using correlation tests and logistic regression.

Results: 23.12% of the participants were normal weight and 76.87% were overweight/obese. The overall mean age was 57.70 ± 11.16 years. Diabetes duration (>5 years), anthropometric parameters, poor glycaemic control, high apo B and high level of low-density lipoprotein (LDL) were found to be significant determinants of atherogenic indices changes. The TC/HDL ratio was weakly associated with both BMI and waist circumference. However, the apo B/apo A1 ratio provided positive correlations with anthropometric parameters, especially with waist circumference ($p=0.185$, $r=0.108$, $r^2=0.012$), and this, in both pre and post-menopausal type 2 diabetic women.

Conclusions: The atherogenic risk, estimated by TC/HDL and apo B/apo A1 ratios, becomes more severe with higher anthropometric parameters (BMI and waist circumference), diabetes duration and poor glycaemic control in type 2 diabetes women and this during both premenopausal and postmenopausal periods.