

## Increasing Metabolic Syndrome Score is an Independent Determinant of Increasing Pulse Pressure

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**Background :** The metabolic syndrome is recognized as a cluster of cardiovascular risk factors that predicts type II DM and cardiovascular disease. Studies have shown that obesity and the presence of metabolic syndrome is associated with increasing arterial stiffness. The objective of this study was to determine whether the progressive increase in metabolic syndrome score, the number of components of metabolic syndrome, is significantly correlated with increasing pulse pressure. **Method :** The study group consisted of 4034 subjects who were enrolled in the Cardiovascular Genome center of Yonsei University (M:F = 2344:1690, 55.2±10.5). The Asian modified criteria of metabolic syndrome was applied for the study populations and the metabolic syndrome score was estimated. The HOMA index for insulin resistance, cholesterol profiles, anthropometric measurements were assessed. **Result :** Among 4034 participants, 1690 (41.9%) were classified as the metabolic syndrome. Progressive increase in PP was demonstrated for increasing components of the metabolic syndrome score. Multiple linear regression analysis with the PP as the dependent variable showed that age ( $\beta = 0.311$ ,  $P < 0.001$ ), metabolic syndrome score ( $\beta=0.226$ ,  $P < 0.001$ ), male gender ( $\beta = -0.093$ ,  $P < 0.001$ ) and HOMA index IR( $\beta = 0.033$ ,  $P = 0.03$ ) are significantly associated with pulse pressure ( $R^2=0.207$ ,  $P < 0.001$ ). **Conclusion :** The results from this study demonstrate that increasing metabolic syndrome score is an independent determinant of increasing PP. The results demonstrate the independent role of metabolic syndrome in increasing arterial stiffness and pulse pressure.

## Sequential Changes of Carotid Arterial Wall According to the Stages of Atherosclerosis

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**Objectives :** We assessed the difference of individual arterial wall (intima (IT), media (MT), and intima-media thickness (IMT)) thickness of carotid artery in patients underwent coronary angiography. **Methods :** Study subjects consisted of 309 consecutive patients (172 males, mean 59 years old) who underwent coronary angiography. Each arterial wall thickness (IT, MT, IMT) of the carotid artery was measured using high-resolution ultrasound and newly devised B-mode ultrasound processing. Study subjects were divided into 3 groups: Control who had insignificant coronary stenosis without hypertension or diabetes, Risk factor group who had hypertension and/or diabetes without significant stenosis, and CAD group who had significant (stenosed more than 50%) coronary stenosis. **Results :** Carotid IMT was  $0.69\pm0.11$ mm,  $0.74\pm0.14$ mm, and  $0.75\pm0.13$ mm in control, risk factor, and CAD group, respectively. Carotid IT was  $0.39\pm0.06$ mm,  $0.36\pm0.06$ mm, and  $0.38\pm0.08$ mm, while carotid MT was  $0.34\pm0.04$ mm,  $0.43\pm0.12$ mm, and  $0.37\pm0.08$ mm in control, risk factor, and CAD group. See the figure for the comparison among the study groups. **Conclusions :** Medial wall thickness of common carotid artery showed significant difference according to the stages of atherosclerosis, while intimal wall thickness did not show significant changes. This study suggests that medial wall thickness of carotid artery reflects the stages of atherosclerosis more closely than the intimal wall thickness.

