POSTERS' SESSION

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LARGE ARTERIES AND CENTRAL BLOOD PRESSURE

PP.06.01 CLINICAL CHARACTERISTICS OF SIMPLE PARAMETERS RELATED TO ARTERIAL STIFFNESS

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Objective: Recently, simple parameters related to arterial stiffness, which simultaneously obtained by oscillometric blood pressure measurement {arterial pressure volume index (API) and arterial velocity pulse index (AVI)}, are applicable in clinical settings. We examined the association of these parameters with conventional markers of arterial stiffness {i.e., brachial-ankle pulse wave velocity (baPWV) and radial augmentation index (rAI)} and also evaluated the influence of anthropometric variables on these parameters.

Design and method: In 376 subjects who admitted to hospital for the management of cardiovascular disease (66 years old, 288 men and 88 women), API, AVI, baPWV and rAI were measured simultaneously.

Results: The association between API and AVI was modest (R = 0.32). While baPWV had similar relationship with API and AVI (R = 0.37), rAI had more close relationship with AVI rather than with API (R = 0.48). Both API and AVI were higher in women than in men. Age, heart rate and obesity significantly affected AVI. On the other hand, blood pressure had a close association with API (R = 0.68).

Conclusions: API and AVI reflect different pathophysiological abnormalities related with arterial stiffness, and they have gender difference. AVI may be a marker reflecting abnormal pressure wave reflection rather than increased arterial stiffness. Age, blood pressure, heart rate and obesity differently affect both parameters.

PP.06.02 THE RELATED PROGRESSION OF ARTERIAL STIFFNESS AND CALCIUM METABOLISM

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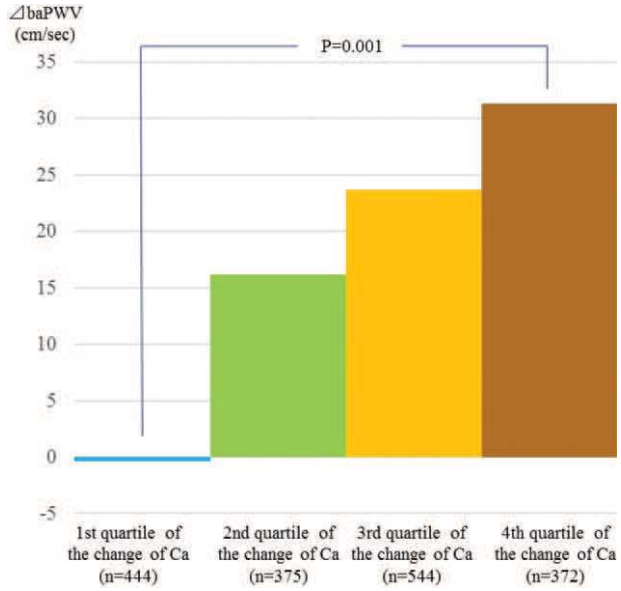
Objective: Several cross sectional studies reported the association of arterial stiffness with calcium/phosphate metabolism in general population. But no longitudinal study has confirmed this association. This 3-years' observation study was conducted to examine the association between the changes of arterial stiffness during the observation period and serum calcium (Ca) and phosphate (P) levels.

Design and method: Ca, P, and brachial-ankle pulse wave velocity (baPWV) were measured in 3-year interval in 1735 middle-aged Japanese men (45 ± 9 years).

Results: The relationships among the change of Ca, P, Calcium phosphate products (Ca × P), and baPWV during the observation period (delCa, delP, delCa × P, and delbaPWV) were examined by univariate linear regression analysis. Only delCa had a significant relationship with delbaPWV (delCa: r = 0.099, P < 0.001 delP: r = 0.003, P = 0.891 delCa × P: r = 0.064, p = 0.440). Then, subjects were divided into quartile ranges by the delCa. The delbaPWV was significantly larger in the highest quartile range delCA (n = 372) (31 ± 120 cm/sec) than that in the lowest quartile range delCa (n = 444) (0 ± 112 cm/sec) (p = 0.001)(figure). This difference was significant eve after the adjustment of confounding variables. On the other hand, delbaPWV was similar between the groups with and without Ca was maintained high range during the study period (i.e. subjects whose Ca was ranked in the highest tertile at both baseline and 3-years after).



Conclusions: Abnormal calcium metabolism, especially elevation of serum calcium levels during the observation, may be associated with age-related increase in arterial stiffness even in middle-aged healthy men.

PP.06.03 LIPIDOGRAM AND ELASTICITY OF GREAT ARTERIES IN HYPERTENSIVE INDIVIDUALS

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Objective: With aging lipidic parametres tend to modify. This represents a risk factors which is useful to monitor in Primary Practice. Vascular elasticity is a parametre which correlates indirectly with arterial rigidity and shows how elasticity decreases with time.

Design and method: 110 hypertensive individuals aged between 40 and 80 years have been selected for the study. Secondary hypertension has been excluded. Lipidogram of these individuals has been performed using the Guide for the Management of Hypertension of the European Cardiology Society. Also Pulse Wave Velocity (PWV) of the aorta has been measured (gold stadard for arterial rigidity) using an arteriograph. We have then tried to establish a correlation between lipidic parametres and PWV

Results: PWV = 9.30m/s, Standard Deviation (SD) = +/-1.92; Total Cholesterol (TC) = 208 mg/dl SD = +/-47.2, which liniarly correlate with Pearson index r = 0.481. PWV and LDL cholesterole (LDLc = 118 mg/dl +/-49.7) correlate with r = 0.501. Triglicerides (TG) = 145 mg/dl SD = +/-111 correlate to PWV with r = 0.379, also HDLcholesterole (HDLc) = 47.1 mg/dl SD = +/-11.9 correlate with PWV with r = 0.353.

Conclusions: Evaluating aortic rigidity and lipids are useful in the evaluation of hypertensive patients with cardiovascular risk. Arterial rigidity measured by the arteriograph directly correlates directly with TC, LDLc and indirectly with HDLc.