Hormonal Mechanisms

6.11 Prevalence of Glycaemic Alteration in Hypertensive Subjects with Cardiac Hypertrophy

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Introduction. In the hypertensive patient left ventricular hypertrophy leads to increased cardiovascular morbidity and mortality independently from blood pressure values and other risks factors. Among different geometric patterns, concentric left ventricular hypertrophy (IVS-concentric LVH) has the worst prognosis.

Aim. This study examines the relationship between geometric patterns and glycaemic alterations in hypertensive patients.

Methods. We recruited 621 hypertensive subjects (aged 53.4 ± 12.7 years, 331 female, 290 males) with fasting glucose < 125 mg/dl and euglycaemic. To define their carbohydrate tolerance all patients were studied by OGTT (according to ADA 2003). The echocardiogram was performed to assess the relative wall thickness, telediastolic diameter, and left ventricular mass according Devereux formula. The left ventricular mass was divided by body surface area in subjects with BMI < 30 , by height 2,7 in those with BMI > 30 .

Results. Based on OGTT, we defined two groups, the first one including 324 subjects (52,2%) with normal glucose tolerance (NGT), the second one including 297 subjects (47,8) with glucose intolerance alteration (ATC). IVS-concentric LVH was recognized in 131 NGT (40,4%) and in 149 ATC (50,2%), whilst 148 ATC (49,8%) exhibited different geometric pattern. The presence of IVS-concentric LVH was prevalent in ATC versus NGT (chi square = 5.93, $p < 0.014$). Excluding the initial group, the remaining 560 patients with normal cardiac morphology were 287 NGT (51,2%) and ATC (48,7%); concentric hypertrophy was found in 131 NGT (45,6 %) and 149 ATC (54,5%). Even in this subgroup of patients IVS-concentric LVH was prevalent in ATC (chi square = 4.46, $p < 0.034$).

Conclusions. Our data confirm the presence of an association between IVS-concentric LVH and glycaemic alterations in the hypertensive patient. This correlation suggests the involvement of insulin-resistance and compensatory hyperinsulinism, the typical alterations of glycaemic derangements, in the development in concentric hypertrophy pattern during hypertensive disease.