CORONARY MICROVASCULAR DYSFUNCTION IN PRIMARY HYPERPARATHYROIDISM PATIENTS: A HINT FOR THEIR INCREASED CARDIOVASCULAR RISK

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Background: Primary hyperparathyroidism (pHPT) increases the risk for myocardial infarction (MI). We evaluated coronary flow reserve (CFR) by transthoracic Doppler echocardiography (TDE), as an index of coronary microvascular function, in pHPT.

Methods: 43 pHPT patients (pts) (34 F, aged 58±11 years) without clinical evidence of heart disease, and 43 controls matched for age and gender were studied. Coronary flow velocity in the left anterior descending coronary artery was detected by TDE at rest and during adenosine infusion. CFR was the ratio of hyperaemic diastolic flow velocity (DFV) to resting DFV. A CFR ≤2.5 was considered abnormal. The median time from pHPT diagnosis was 7 months (range 5-79).

Results: In pHPT pts, CFR was lower than in controls (2.8±0.7 vs 3.8±0.8, p<0.0001) (Figure A). CFR was ≤2.5 in 17 (39.5%) pts compared with controls (4.3%) (p<0.0001). CFR was inversely related to parathyroid hormone (PTH) levels (Figure B). In pts with CFR ≤2.5, PTH was higher (5.6±0.9 vs 5.0±0.3 pmol/L, p=0.02) while calcium levels were similar (1.04±0.09 vs 0.99±0.05 mmol/L, p=0.07). At multivariable analysis adjusted for age, gender, calcium levels and cardiovascular risk factors, PHT was the only determinant of CFR (β=-0.485, p=0.003).

Conclusions: Microvascular function is impaired in pHPT and is correlated with PTH independently of calcium levels, suggesting a negative effect of PTH on coronary microcirculation that may contribute to the increased cardiovascular risk in pHPT.