Genetics and Pharmacogenomics

3.2 Low RGS2 Expression in Resistant Hypertension: a Longitudinal Study

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Objective: RGS2 (regulators of G-protein signalling) is a negative regulator of $G_{\alpha q}$ protein signalling, which mediates the action of several vasoconstrictors. A low RGS2 expression contributes to increased G-protein-coupled signalling in hypertensive patients. Aim of the study was to correlate RGS2 expression in peripheral blood mononuclear cells (PBMs) with the response to antihypertensive therapy in essential hypertensive patients.

Methods: PBMs were isolated from 81 essential hypertensives. Quantitative mRNA RGS2 expression was performed by real-time quantitative reverse transcriptase-polymerase chain reaction. Antihypertensive treatment was given in accordance to ESH/ESC guidelines (2003). Resistant hypertension was diagnosed if blood pressure (BP) > 140/90 mmHg with three antihypertensive agents, including a diuretic.

Results: During follow up, 68 (84%) patients reached the end point (BP < 140/90 with less than 3 drugs). Resistant hypertensives (n=13, M/F 6/7) were older (56 ± 7 vs 48 ± 13 years, $p\Delta\Delta C_t$, $p<0.05$).

Conclusions: Low RGS2 expression reduces response to the antihypertensive medications by increasing sensitivity to angiotensin II and aldosterone secretion. It may account for resistant hypertension.