

Physicians' Use of a Gene Expression Test was Associated With Increased Utilization and Medication Adherence Among Patients Prescribed Lipid-Lowering Therapy

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Introduction: Physician prescribing of chronic cardiovascular medications as well as patient adherence with these medications is highly variable.

Hypothesis: We hypothesized that results from a gene expression score (GES) measuring atherosclerotic burden influenced patient utilization and adherence with cardiovascular therapy.

Methods: The GES is a validated quantitative blood-based diagnostic test for non-diabetic patients, measuring expression levels of 23 genes from peripheral blood cells to determine the likelihood of a patient having at least one vessel with $\geq 50\%$ coronary artery stenosis as well as associated atherosclerotic burden. The GES was defined as below (low GES) or above (non-low GES) the validated threshold of 15. A retrospective cohort design was used to determine whether GES-derived risk groups significantly differed with respect to cardiovascular medication utilization and adherence after administration of the GES. Participants (N = 763) were included in the study if they 1) received a test between 5/1/2010 and 3/1/2011, and 2) were continuously eligible to receive benefits from a large, national pharmacy benefits manager during the six months prior to and twelve months following their respective test dates. Assessment of medication adherence relied on the proportion of days covered methodology after 365 days of follow-up. Wilcoxon rank-sum test statistics were used to identify statistical differences between risk groups.

Results: The study population had an average age of 59, and 51% were female. The average GES was 18 and 42% had $GES \leq 15$. Patients with non-low versus low GES had a significantly greater increase in spending on lipid-lowering agents in the 365 day follow-up period (+\$171 versus +\$58 respectively in per-patient costs after GES results, $p < 0.001$). In addition, patients with a non-low GES versus low GES were more adherent to the prescribed lipid-lowering agents (75% versus 64% respectively in adherence levels after GES results, $p < 0.05$).

Conclusion: Physicians incorporated the GES in the decision-making process around utilization of lipid-lowering agents and used the GES as a tool for improving medication adherence among patients prescribed lipid-lowering therapy.

Reference: Parsons K, Yau M, Markward N, et al. Physicians' Use of a Gene Expression Test was Associated With Increased Utilization and Medication Adherence Among Patients Prescribed Lipid-Lowering Therapy. *Circulation*. 2012;126:A17332.