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THE DIAGNOSTIC BENEFIT OF STRESS TEST PRIOR TO CARDIAC MULTI-SLICE COMPUTED TOMOGRAPHY IN PATIENTS WITH SUSPECTED CORONARY ARTERY DISEASE: CLINIC AND ECONOMIC OUTCOMES FROM THE EMILIA-ROMAGNA MSCT REGISTRY

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OBJECTIVES: Cardiac Multi-Slice Computed Tomography (MSCT) has been demonstrated as a valid diagnostic tool for coronary artery disease (CAD) especially due to its higher comparative accuracy. Consequently, there is mutual agreement on its use following a non-interpretable or equivocal stress-test (exercise, perfusion or stress-echo) result; however, its frequent use as first-step investigation contributes to the controversy on which strategy really maximizes patient outcomes. Using data of a regional registry, we investigated the optimal application of MSCT in patients with suspected CAD.

METHODS: During 2007, 566 patients with suspected CAD or stable angina underwent MSTC in six different public structures in Emilia-Romagna; after applying exclusion criteria (previous hospitalization for Acute Myocardial Infarction and/or revascularization; MSCT performed in inpatient setting), 350 subjects (209 with and 141 without a previous stress-test result, respectively) were considered eligible. All events of interest, such as death, hospitalizations, diagnostic procedures, visits and cardiovascular drugs utilization were traced for one year. Direct costs were evaluated from the perspective of the Regional Health Service (RHS).

RESULTS: Except for hyperlipidemia ($p=0.0058$) and diuretics consumption ($p=0.006$), all baseline characteristics were similar between the two groups. No relevant differences were found in all endpoints including the average number of cardiovascular-related hospitalizations (0.46 vs. 0.33; $p=0.66$), which was lower in the “stresstest+MSCT” group. Notably, hospitalizations alone accounted for 90% of total health care expenditures (€1.018.054 for all 350 patients). The sensitivity analysis (based on 5000 bootstrap samples) indicated a mean cost difference of €513 +/- 22 (CI 95%) and a mean hospitalizations difference of 0.13 +/- 0.003 in favor of the “stresstest+MSCT” strategy, which showed a probability of being cost effective of 0.86 (WTP= €10,000)

CONCLUSIONS: Using MSTC after stress-test is likely to reduce the risk of hospitalization and additionally provides good value for money from the perspective of the RHS.