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Safety and tolerability of regadenoson in patients with chronic obstructive pulmonary disease or asthma

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Background: Regadenoson is a selective adenosine A2a receptor agonist, now being used extensively for radionuclide myocardial perfusion imaging (MPI). Patients with reactive airway disease are at an increased risk for adenosine induced bronchoconstriction via stimulation of A2b and A3 receptors.

Methods: All patients who underwent radionuclide MPI using regadenoson stress test over a period of one year at our institution were included in this study. Patient demographics, past medical history including medications, hemodynamic data and the development of symptoms during the test were collected. The use of aminophylline to counter the effects of regadenoson in symptomatic patients was also recorded. Patients with chronic obstructive pulmonary disease (COPD) or asthma were compared to patients without COPD/asthma (control) using the above variables.

Results: The study included 799 patients with a mean age of 61 ± 13 years. Out of the total cohort, 151(19%) had COPD/asthma with a mean age of 59 ± 12 years and 32% were men. Patients with COPD/asthma had a higher incidence of shortness of breath (29.8% vs. 18.2%; $p=0.0015$) and headache (16.5% vs. 8.9%; $p=0.0058$) when compared to the control group. However, no patients developed active wheezing during the test. Symptoms of chest discomfort, dizziness, gastrointestinal discomfort, nausea or arrhythmias were not significantly different between the groups. The use of aminophylline was significantly higher among COPD/asthma patients as compared to the control group (26.4% vs. 19.1%, $p=0.043$). Changes in systolic blood pressure, diastolic blood pressure and heart rate response to regadenoson bolus were similar between the groups. There were no hemodynamically significant arrhythmias or serious adverse events in either group.

Conclusions: Patients with COPD/asthma undergoing regadenoson MPI had a higher incidence of shortness of breath and headache resulting in an increased use of aminophylline. Regadenoson was hemodynamically well tolerated without any serious adverse events in COPD/asthma patients.

Biography

Mahek Shah did his Medical Graduation at Seth GS Medical College, India. And after he moved to US and he is currently doing his Internal Medicine resident at Einstein Medical Centre, Philadelphia. His main research area is Cardiology and he had done many projects in Cardiology during his training period.

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