

respectively ($P < .0001$). Also there was a similar reduction in the number of subjects getting intravenous (IV) beta blocker in 256 slice than in 64-slice, 95(37%) vs 159(62%) respectively ($P < .0001$). IQ was better in 256 slice compared to 64 slice (Excellent IQ: 76% vs 47%, $P < .0001$).

Conclusions: This study demonstrates that GE Revolution 256 detector CT scanner can provide high quality coronary CT angiography images with 11% less utilization of contrast media, 33% less utilization of oral beta blockers, and 25% less utilization of IV beta blockers compared to 64 slice CT scanner.

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PATIENTS WITH ANGINA PECTORIS; ASSESSING REGISTRY CARDIAC CT DATA FROM THE NORWEGIAN REGISTRY FOR INVASIVE CARDIOLOGY, NORIC.

T. Larsen, S. Hovland, S. Rotevatn, C. Berge, K. Kuiper, Ali A. Mohamed, I. Karaji. *Haukeland University Hospital, Bergen, Norway*

Introduction: All coronary CT (CCTA) performed at the Haukeland University Hospital, Bergen, Norway, has been registered into a customized module of the Norwegian Registry for Invasive Cardiology (NORIC) since 2013. Although NORIC was mainly developed as a national registry for invasive coronary procedures, it offers the opportunity to register 45 various CCTA variables in order to provide tools to monitoring the quality of the examinations, and to combine data with those of other national quality registries. For the invasive procedures, a completeness of NORIC has shown to be 98–99%, and is likely comparable to that of the CCTA's. Here, we present data registration on the CCTA performed on patients with stable or unstable angina pectoris (AP) as indication.

Methods: CCTA data of patients with either suspected stable or unstable AP (i.e. hospitalized AP patients with negative troponins) was retrieved from January 2, 2013, to December 16, 2019. All examinations were performed by dual source CT (Siemens Somatom FLASH, 2013–2016, and FORCE, 2017–2019), total of 11,428 examinations were obtained including 6,178 (54.1%) and 5,250 (45.9%) with stable and unstable AP, respectively. Termination of the examination before administration of intravenous contrast was done in 699 cases (6.0%); virtually all due to high Ca-Score. In the remaining 10,729 (94%) patients who underwent contrast angiography, variables related to the CCTA procedure were examined including CT-technique, radiation dose (dose length product, DLP), and administration of nitroglycerin and intravenous beta-blocker.

Results: Concerning CT-technique only 200 (1.9%) were achieved by retrospective ECG-triggering, while 1-beat prospective technique was applied for 1,694 (18.8%) and step-and-shoot 8,812 (82.1%) for the remaining examinations. The median and mean DLP was 283.0 and 369.4 mGy, respectively. The mean DLP was reduced to 295.3 mGy for the last 3 years. Preprocedural nitroglycerin was administered for 84.5% of those subjected to contrast-enhanced CCTA, while intravenous beta-blocker was used for 61.7% of the patients.

Conclusions: The CCTA registry provides information about the CT procedures that leads to decisions related to indications, CT-protocols, and implementation of new equipment. Here, it is indicated that the introduction of a new dual-source scanner led to a reduction of radiation dose with 24%. Yet, analyses of NORIC registry data related to CT findings with individualized data related to further examination, treatment and outcome remains to be done.

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CORONARY ARTERY CALCIUM SCORE MAY SELECT PATIENTS IN WHOM CORONARY CT ANGIOGRAPHY IS DISCOURAGED DUE TO THE NEED FOR DOWNSTREAM TESTING

J. Simon, L. Száraz, B. Szilveszter, B. Merkely, P. Maurovich-Horvat, M. Kolossváry. *Semmelweis University, Budapest, Hungary*

Introduction: Coronary CT angiography (CCTA) has a Class I recommendation as the initial test for symptomatic chest pain patients. However, in cases of irregular heart rate (HR), significant obesity or high likelihood of significant stenosis, CCTA may not be advised since obtaining good image

quality and/or the high probability of obstructive coronary artery disease (CAD) may lead to unnecessary downstream testing. Coronary artery calcium score (CACS) by robustly quantifying calcification may help to select patients in whom alternative diagnostic tests may be beneficiary due to the high probability of downstream testing following CCTA. We aimed to assess whether CACS increases the diagnostic accuracy to identify patients who were referred for further testing due to non-diagnostic CCTA or the presence of significant stenosis.

Methods: Consecutive CCTA patients with suspected CAD were included into our retrospective analysis. We used multivariate logistic regression and receiver operating characteristics analysis containing anthropometric factors that might reduce CCTA interpretability: body mass index (BMI), HR and heart rhythm irregularity; parameters used for pre-test likelihood of CAD estimation: age, gender and type of angina (Model-1); and also added total CACS (Model-2) to predict downstream testing.

Results: We included 4120 (45.7% female, 57.9 ± 12.1 years) patients in our analysis. Model-2 significantly outperformed Model-1 (area under the curve: 0.84 vs. 0.72, $p < .0001$). BMI, age and gender did not significantly influence downstream testing. Among significant predictors, total CACS proved to be the most prominent, increasing the odds of downstream testing by 12.3 (95%CI: 9.6–16.0) for CACS between 101 and 400; 33.8 (95% CI: 24.4–47.3) for CACS between 401 and 999; and OR:164.9 (95%CI: 91.2–325.5) for CACS over 1,000 (all $p < .0001$).

Conclusions: CACS significantly increases the ability to identify patients in whom deferral of CCTA may be advised due to downstream testing. In cases of CACS > 100 , an alternative to CCTA by be advised, as these patients irrespective of clinical factors, have a more than ten times greater odds of further downstream testing.

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PRESENCE AND SEVERITY OF CORONARY ATHEROSCLEROSIS IN PATIENTS WITH ZERO CALCIUM SCORE ON COMPUTED TOMOGRAPHY CORONARY ANGIOGRAPHY: RELYING ON CALCIUM SCORING ALONE MAY MISS CLINICALLY IMPORTANT CORONARY ARTERY DISEASE.

S. Alam, U. Siddique, A. Nawaz Khan, S. Gul, S. Iqbal, S. Ghulam Ghaus, H. Abid. *Rehman Medical Institute Peshawar, Peshawar, Pakistan*

Introduction: Coronary artery calcification is known as a specific indicator of coronary atherosclerotic disease. However, relying on calcium scoring alone may miss non-calcified plaques with clinical importance in young high risk individuals. Studies have demonstrated that a zero calcium score (CS) is characteristic of a low risk for cardiovascular events. However, the prevalence of individuals with coronary atherosclerotic plaques and zero CS is conflicting in the specialized literature. The aim of our study was to identify the presence and severity of coronary plaques in computed tomography coronary angiography (CTCA) in patients with a zero calcium score. Our objective was to find the frequency of presence and severity of coronary plaques on computed tomography coronary angiography (CTCA) in patients with zero calcium score.

Methods: Prospective descriptive study of 245 selected patients, who had a zero coronary calcium score (Age range of 30 to 66 years, Median =44.8) and underwent CT coronary angiography on 128 slice Toshiba's Multi-detector CT scanner (MDCT), between Dec 2012 and January 2018 at a hospital in Peshawar. Images were assessed on Vitrea workstation for calculation of plaque burden and vessel analysis was done using automated and manual select vessel option. The presence of plaques and extent of stenosis were evaluated. Retrospective interpretation of prospectively acquired data was done using Microsoft Excel and SPSS.

Results: 130 patients (53%) had atherosclerotic disease; 23 (9.3% of total patients) had significant ($> 50\%$) coronary stenosis, out of which 10 patients had $> 70\%$ stenosis. 107 (43.6% of total patients) had non-significant ($< 50\%$) coronary stenosis. 115 (46.9%) of the patients had normal coronary arteries with no disease.

Conclusions: We conclude from our results that in patients with zero calcium score, atherosclerosis was seen in 53% patients and 9.3% had significant coronary artery disease. Hence, zero calcium score does not absolutely exclude the coronary artery disease.