wall with multi-detector computed tomography (MDCT) is not well established. The aim of this study is to compare the diagnostic accuracy of our new quantitative, volumetrically based NCVC system with intravascular ultrasound (IVUS) and quantitative coronary angiography (QCA).

**Method:** We performed a randomized, non-blinded trial in 136 consecutive patients (22 lesions). The NCVC system and IVUS were compared in 9 coronary artery disease patients (22 lesions).

**Results:** The figure shows a stenotic, calcified lesion in the right coronary artery visualized by this system. Lipid and calcification in the arterial wall and the luminal size were clearly discriminated by coloring according to Hounsfield units. In addition, the cross-sectional area of each arterial segment can be calculated automatically by this 3D system. There were no significant differences in mean luminal diameter as measured by the NCVC system versus QCA (2.3±1.2 mm vs. 2.5±1.0 mm, NS) and a strong correlation was observed (r=0.95, p<0.0001). Similarly, there was no significant difference in luminal cross-sectional area measurements between the NCVC system and IVUS (6.0±3.4 mm² vs. 6.3±4.1 mm², NS) and a strong correlation was seen (r=0.85, p<0.0001). Mean differences between the NCVC system versus QCA and IVUS were 0.084±0.286 mm and 0.341±0.164 mm², respectively.

**Conclusion:** NCVC system has high diagnostic accuracy for quantification of coronary artery.

---

**P2932 | BEDSIDE**

Cost-effectiveness of non-invasive imaging guided strategy vs fractional flow reserve guided approach in patients with non-culprit lesion at primary percutaneous coronary intervention (PPCI) for ST Elevation Myocardial Infarction (STEMI)

A. Ghosh Dasdter, M. Cengarle, D. Augustine, V. Vizzi, T. Johnson, A. Baumbach, J. Strange, C. Bucciarelli-Ducci, A.K. Nightingale. Bristol Heart Institute, Bristol, United Kingdom

**Background:** It is estimated that nearly 40% of the patients presenting with STEMI have multivessel disease (MVD). The best strategy for STEMI patients with MVD is still not well established. Currently both the ESC and the ACC/AHA guidelines recommend revascularization of the culprit artery only with a further non-invasive or a staged revascularization approach.

**Aim:** To determine the cost effectiveness of non-invasive imaging guided strategy as compared to fractional flow reserve (FFR) guided approach in STEMI patients with significant MVD treated with Primary PCI (PPCI) of the culprit lesion.

**Methods:** In this retrospective observational study, performed at a tertiary centre in the South-West of England, data were collected on consecutive patients who underwent PPCI from 1st Jul 2011 to 30 June 2012. A non-culprit lesion was considered to be significant if the stenosis was >50% in large proximal epicardial vessel or >70% elsewhere. The management of MVD was recorded.

**Results:** 593 patients were included, out of these, 74% were male with a mean age of 63 years. Significant MVD was present in 188 patients (32%). At approximately 6 weeks from the acute event, 115/188 (61%) either underwent stress echocardiogram (n=68, 59%) or stress CMR (n=47, 41%). The remaining 73 patients either underwent direct revascularisation without any ischaemia assessment due to presence of critical stenosis (>90% stenosis) or died in hospital or were lost to follow up. Of those patients undergoing non-invasive imaging, 56% (64/115) had no evidence of inducible ischaemia, and were therefore treated conservatively. Post-processing these figures in a FFR guided approach model our study showed an average saving of £285 per patient. This cost effectiveness calculation is based on the assumption that the positive and negative predictive value of non-invasive imaging and FFR assessment are similar. The model used a cost for a non-invasive imaging test of £550 (stress MRI - £500, stress echo - £500), angiography with FFR assessment £1550, for elective angioplasty £2500 and additional cost of angioplasty following on from FFR study of £1000.

**Conclusion:** Our study demonstrated that, when patients with MVD are selected with non-invasive imaging guided strategy, less than 50% patients undergoing PPCI with by-stander non-culprit coronary artery disease need further revascularisation. The results of our study suggest that non-invasive guided approach is both a feasible and cost-effective management strategy in patients with MVD following PPCI.

---

**P2934 | BEDSIDE**

Feasibility and accuracy of point-of-care ultrasound examination performed by medical students

G.N. Andersen1, A.T. Visser2, O.C. Mjølset2, O. Salvesen3, H. Dalen4, B.O. Haugen5, A. Meijer1, Catharina Hospital, Department of Cardiology, Eindhoven, Netherlands; 2Philips Healthcare, Best, Netherlands

**Purpose:** Despite its carcinogenic potential X-ray remains indispensable for EP procedures. In this complex clinical trial we evaluate dose reduction as well as image quality (IQ) of a novel X-ray dose reduction technology, based on improved noise reduction (Allura Clarity, Philips) in a state of the art EP-lab.

**Methods:** We performed a randomized, non-blinded trial in 136 consecutive patients undergoing ablations for complex arrhythmias (atrial fibrillation, atrial flutter or ventricular tachycardia). In the X-ray system (Philips Allura FD20) Allura Clarity was either switched ON (A: 68 patients) or OFF (N: 68 patients). Primary endpoint was overall procedural patient dose (expressed in Dose Area Product, DAP and Air Kerma, AK). Physician dose, procedural success and necessity to switch to higher dose settings, or in order to improve IQ were used as secondary endpoints. Additionally, fluoro time, number of exposure frames and procedure duration were recorded. In case of non-normal distribution, the Mann-Whitney test was applied.

**Results:** Baseline characteristics were similar, except for age. Patients in A-group were younger (56 vs 65 years old, P<0.001); BMI was equal (26 vs 26 kg/m²). Median DAP and AK were 40% and 47% lower in the A-group, compared to the N-group (median DAP 8723 vs 14608 mGy/cm², AK 66 vs 123 mGy, P<0.001). Additionally, a significant physician dose reduction of 42% (median 3.5 vs 6 µSv, P<0.001) was achieved. Equivalence of fluoro time (21 vs 25 min), number of exposure frames (41 vs 36), and procedure duration (168 vs 163 min) indicate that IQ in the A-group is as adequate as in the N-group. Also, in all cases in both groups IQ was judged as adequate for the entire procedure. In both groups procedural success could not be achieved in 5 patients; in the A-group 1 tamponade occurred.

**Conclusion:** A novel x-ray dose reduction technology (Allura Clarity, Philips) significantly reduces both patient and physician dose, while maintaining comparable image quality. Use of this technology will further improve safety of electrophysiological interventions.