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**ROLE AND COST-EFFECTIVENESS OF NON-INVASIVE IMAGING GUIDED APPROACH IN PATIENTS WITH NON-CULPRIT CORONARY ARTERY LESION DIAGNOSED AT PRIMARY PERCUTANEOUS CORONARY INTERVENTION**

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**Background** It is estimated that 40% of the patients presenting with ST Elevation Myocardial Infarction (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 revascularisation approach.

**Aim** To determine the role of a non-invasive imaging 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 1 January 2012 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** 310 patients were included, out of these, 74% were males with a mean age of 63 years. MVD was present in 117 patients (38%). At approximately 6 weeks from the acute event, 71/117 (61%) underwent either stress CMR (n=31, 43%) or stress echocardiography (n=40, 56%). Of the remaining 46 patients: 11 died, 15 were repatriated to base hospital with no follow up data available and 20 underwent direct revascularisation without any ischaemia assessment due to presence of critical stenosis (>95% stenosis). Of those patients undergoing non-invasive imaging, up to 52% (37/71) had no evidence of inducible ischaemia, and were therefore treated conservatively. This had the direct consequence of saving the cost of an additional angiogram with fractional flow reserve (FFR) study (~£1500) and possibly preventing hospital stay. Given that the cost of non-invasive imaging varies from around £600 for a stress MRI to £450 for a stress echo, a non-invasive strategy is likely to be cost-effective compared to a repeat angiogram and FFR guided revascularisation strategy (minimum saving from £1050 to £900 per patient).

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