

Conflict of Interest No

68

A COMPARATIVE STUDY OF THE ECONOMICS AND SAFETY OF INTRAVASCULAR LITHOTRIPSY VERSUS ROTATIONAL ATHERECTOMY FOR CALCIUM MODULATION IN PERCUTANEOUS CORONARY INTERVENTION: A UK TERTIARY CENTRE EXPERIENCE

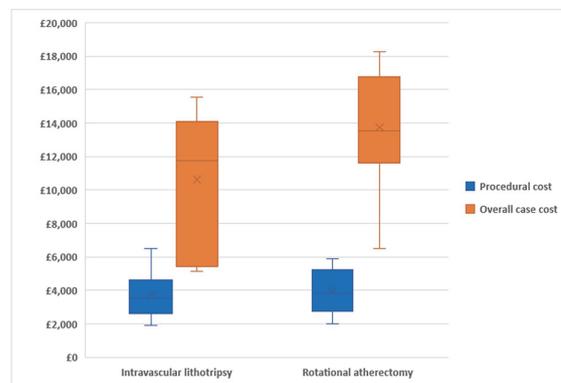
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Introduction Intravascular lithotripsy (IVL) [Shockwave Medical Inc] is a relatively novel method of treating complex, calcified coronary lesions and is becoming a fundamental staple of the coronary calcium modulation algorithm. When compared to rotational atherectomy (RA) [Boston Scientific], it has lower procedural complication rates. Objective: To compare the real-world costs and utilisation of resources, procedural and 30 days complications, radiation exposure and contrast volume use between IVL and RA at the Trent Cardiac Centre (TCC), Nottingham University Hospitals NHS Trusts - a tertiary UK cardiac centre.

Method Consecutive patients undergoing percutaneous coronary intervention (PCI) where IVL was utilised (n=12) were compared to consecutive patients where RA was utilised (n=12) in 2021/22 at TCC. Patients' data were electronically retrieved from the hospital's cardiovascular electronic system TOMCAT [Philips]. Patients' demographics and risk factors, periprocedural events, procedural time, contrast volume and radiation doses were analysed and compared in both groups. Incidence of major adverse cardiovascular events (MACE) and hospital re-admissions over the following 30 days were recorded. Cost data was calculated using the NHS Patient Level Information and Costing System (PLICS). Continuous data are expressed as a mean \pm 2 standard deviations and p-values calculated using one-tailed Student's t-test.

Results The mean age was 74.8 ± 8.8 years in the IVL groups vs. 77.2 ± 9 years in the RA group, $p=0.26$. Numerically, the proportion of females was higher in IVL group as well as the presence of vascular risk factors such as hypertension, hyperlipidaemia, and smoking history. In the RA group, two procedural complications were reported (side branch occlusion and coronary dissection) whereas only one complication (femoral site access haematoma) was recorded in IVL group ($p<0.07$). No MACE events at 30 days were recorded in either group. There were no significant differences in procedural time (mean difference 15 mins, IVL = 128 ± 29 mins vs. RA = 113 ± 27 mins, $p=0.22$), contrast volume use (mean difference 34 ml, IVL = 210 ± 48 ml vs. RA = 176 ± 47 ml, $p=0.16$) or Dose Area Product (DAP) radiation exposure (mean difference 956 Gy \cdot cm², IVL = $4803 \pm 1,604$ Gy \cdot cm² vs. RA = $5,759 \pm 3,326$ Gy \cdot cm², $p=0.29$). The cost of the IVL balloon was identical in cost to the Rota-Link™ plus in our institution, at around £1440. There was no statistical difference in the procedural costs between the two groups (procedural costs mean difference £368, IVL = $£3759 \pm 867$ vs. RA = $£4128 \pm 901$, $p<0.26$), but the overall costs, which included inpatient and outpatient costs, pathology, radiology and staff costs projected out to 1 year, were significantly lower with PCI with IVL vs. PCI with RA (overall costs



Abstract 68 Figure 1 The difference in both procedural and overall case costs between intravascular lithotripsy and rotational atherectomy. There is no significant difference in procedural cost (blue), but the overall cost for case is lower in PCI with IVL than PCI with RA (orange). Data are expressed as a mean (x) \pm 2 standard deviations on each side of the figure

mean difference £3,120, IVL = $£10,626 \pm 2,876$ vs. RA = $£13,746 \pm 2,536$, $p<0.04$) (Figure 1).

Conclusion There were no significant differences in levels of radiation exposure, contrast volume used or length of the procedure comparing IVL with RA. There was significant overall cost reduction with the use of IVL in complex PCI procedures with cost effectiveness being predicted over the following year. Future randomised trials of new PCI technologies should include a formal health economic analysis.

Conflict of Interest None

69

REFERRAL TO ANGIOGRAPHY FOR NON-ST-ELEVATION ACUTE CORONARY SYNDROME PATIENTS: ARE WE FOLLOWING THE LOCAL GUIDELINES?

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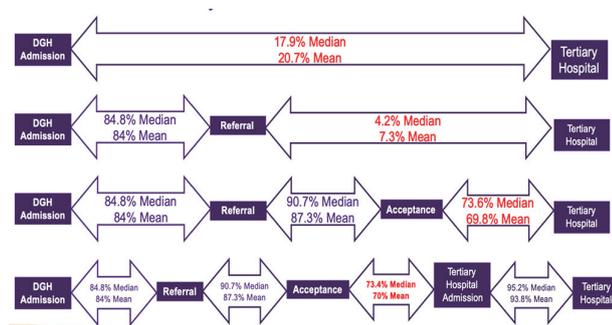
Background National Institute of Clinical Excellence (NICE) guidance suggests that patients with non-ST elevation myocardial infarction (NSTEMI) should undergo invasive angiography within 72 hrs of admission. Delivery of timely angiography is challenging; the aim of this study was to assess compliance and identify gaps at a regional level.

Methods We performed a retrospective analysis of all patients transferred to Liverpool Heart and Chest Hospital (LHCH) for invasive management of NSTEMI between March 2019 to February 2020. We identified multiple time points along the ACS patient pathway including: time taken from local hospital admission to referral to LHCH; time taken for referral acceptance; and time taken from LHCH acceptance to admission to LHCH.

Results 1723 patients (mean age 66 ± 12 years; 37.2% female) with NSTEMI were included in the analysis-Table 1. From first hospital admission to transfer to tertiary centre catheter laboratory for angiography, the target of 72 hrs was achieved in only 21% of patients. Median time from admission to district general to admission to tertiary centre was 110.00 hr (4 days and 14 hrs). 40% of patients were referred within 24

Abstract 69 Table 1 Patient demographics

	Total (n=1723)
Age (years)	65.55 ±11.91
Sex (female)	641 (37.2%)
Hypertension	939 (54.4%)
Hypercholesterolaemia	774 (44.9%)
Chronic Kidney Disease	137(7.95%)
Prior cerebrovascular disease	107 (6.21%)
Smoking habit	Non-smoker: 655(38.02%) Current smoker: 358 (20.78%) Ex-smoker: 557 (32.33%)
Diabetes mellitus	Type 1: 20 (1.16%) Type 2: 359 (20.84%)



Abstract 69 Figure 1 Summary of the median/mean percentages of acute coronary syndrome with non-ST elevation MI cohort we achieved within 72 hours window periods

hrs of admission and 74% in less than 48 hr. 74% of patients were accepted within 24 hrs of referral. The median acceptance to admission time was 49 hr. 91% of patients were taken into catheter lab within 24 hours of admission to tertiary centre – Figure 1.

Conclusion In patients with NSTEMI timing of invasive treatment is not delivered according to national recommendations. There appear to be delays at each stage of the ACS pathway. Multiple factors may contribute to this delay including transportation delays, in addition to beds and catheter laboratory capacity in the tertiary centre. More research is needed to look into each stage independently, in order to be able to achieve the targets set by NICE.

Conflict of Interest None

70

ASSESSING THE IMPACT OF THE COVID-19 PANDEMIC ON RAPID ACCESS CHEST PAIN CLINICS: A RETROSPECTIVE AUDIT IN GLASGOW

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Introduction Rapid Access Chest Pain Clinics (RACPCs) offer rapid, comprehensive assessment of patients presenting with

chest pain and effectively identify low-risk and high-risk patients of a fatal coronary event, such as myocardial infarction (MI) and death. The COVID-19 pandemic in March 2020 has led to many clinic cancellations, face-to-face appointments being replaced by telephone consultations, and limited access to key investigations such as electrocardiogram (ECG) and exercise treadmill tests (ETT). The impact of the pandemic on this service has not been previously studied. The aim of this audit was to assess referral patterns from primary and secondary care settings to the NHS Greater Glasgow and Clyde (GGC) RACPC and compare clinical outcomes pre- and post-pandemic.

Methods Retrospective data was collected from a cohort of 90 patients attending three NHS GGC RACPCs between January 2019 to January 2021. The first consecutive 10 patients attending each month were analysed. Many RACPC clinics were closed in April 2020 onwards and therefore no data was available. Data was retrieved from NHS GGC electronic healthcare records at baseline and at one year follow-up. Patients were categorised into three subgroups based on the initial diagnosis made at the RACPC: acute coronary syndrome, stable coronary heart disease and low-risk/non-coronary chest pain. Statistical analysis was conducted using STATA.

Results Five out of the 90 patients did not attend their RACPC appointment. At baseline, co-morbidities included hyperlipidaemia (80%), hypertension (36%), diabetes (14%) and obesity (37%) (Table 1). In 2019 and 2020, most patients were diagnosed with low risk/non-coronary chest pain (68% and 78% respectively). In contrast, in January 2021, most patients were diagnosed with stable coronary heart disease (70%). Only one patient was diagnosed with acute coronary syndrome during this study period. In 2019 and 2020, almost all patients had ECGs, and many had ETTs performed on the same day as the initial RACPC assessment (Table 2). Whereas in 2021, time from initial RACPC appointment to investigation was longer (median 92.5 days for ECG and 21 days for ETT). More patients had myocardial perfusion scans (MPS) pre-pandemic compared to post-pandemic (p=0.035). In January 2020, 3 patients underwent PCI and of these, 2 patients had MIs before the percutaneous coronary intervention (PCI) procedure and were alive at follow-up (Table 2). In January 2019, one patient had coronary artery bypass graft (CABG) surgery. In 2021, no patients underwent coronary intervention (PCI or CABG) and there were no cases of MI or death during follow-up. The median time from referral to RACPC assessment was approximately 14 days or less. Patients in 2021 had earlier appointments compared to other years (median 7 days). Overall, patients assessed in 2020 had investigations earlier than other years, whilst patients in January 2021 waited the longest from initial assessment to investigations.

Conclusion In 2021, patients waited longer for investigations compared to previous years. This is likely due to the large backlog of patients due to clinic closures and reduced services during the pandemic. Also, in 2021 many patients were assessed via telephone (instead of face-to-face) consultations due to national/local restrictions. This may explain the high proportion of patients diagnosed as stable coronary heart disease in 2021 compared to previous years. Only one patient was categorised as ‘acute coronary syndrome’, and this patient underwent CABG within follow-up. No patients suffered an MI or died of cardiac causes. Our audit shows that patients in the medium and high-risk categories were effectively and