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CORONARY ROTATIONAL ATHERECTOMY USING BURR-TO-ARTERY RATIOS OF LESS THAN 0.5 IS ASSOCIATED WITH LOW LEVELS OF COMPLICATIONS, HIGH PROCEDURAL SUCCESS RATES AND FAVOURABLE 12-MONTH OUTCOMES

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Background Rotational atherectomy (RA) is an established treatment of heavily-calcified coronary stenoses. Previous data suggest higher procedural complication rates when Burr-to-Artery (BTA) ratios exceed 0.7; the manufacturer-recommended BTA being 0.6. Little contemporary data exists regarding safe and optimal burr sizing, which may be important when considering RA via the radial approach with lower-caliber guiding catheters.

Methods Single-centre retrospective review of patients undergoing elective RA between 2004 and 2011. Procedural success was defined as successful stent deployment with residual stenosis <30%, and complications defined as death, pericardial effusion/tamponade, coronary dissection/perforation and emergent CABG. Demographic and outcome data were obtained from local/national databases and

casenote review. Quantitative coronary angiographic analysis was performed on archived films.

Results Elective RA was successful in 197/220 cases (89.5%) with 72% of cases male and 22% diabetic (mean age 71.1 ± 8.9 years). Target vessel was LAD (50.9%), RCA (35.0%), LCx (10.9%) and LMS (3.2%). Mean reference diameter was 3.45 ± 0.6 mm and mean diameter stenosis (DS) $71.9 \pm 12.9\%$. Maximum burr size/case ranged from 1.25–2 mm (mode 1.5 mm) with mean BTA 0.43 ± 0.08 . 10 procedural complications occurred (4.5%); one wire fracture, two dissections, three perforations, two emergency CABG, one unretractable burr and one death. No difference in mean BTA was observed between procedures with/without complications (0.38 ± 0.03 vs 0.43 ± 0.08 ; $p=0.33$), but residual DS was higher in those with complications (12.3 ± 21.2 vs 58.8 ± 31.2 ; $p<0.01$). No correlation was observed between maximum burr size and age, sex, DS or minimum luminal diameter. At 36-month follow-up mortality was 11.7% and target vessel revascularisation (TVR) 22.8%.

Conclusions Elective RA with low BTA is associated with high procedural success and low complication rates. These data imply that elective RA with a lower BTA than recommended is both safe and effective and need not preclude a transradial approach.