**Outcomes of Atherectomy in Treating Severely Calcified Coronary Lesions in Patients with Reduced Left Ventricular Ejection Fraction: A Systematic Review and Meta-analysis**

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**Background:** There is limited data examining the safety and efficacy of atherectomy without hemodynamic support in treating severely calcified coronary lesions in patients with reduced left ventricular ejection fraction.

**Objective:**  To evaluate the clinical outcome of atherectomy in patient with reduced left ventricular ejection fraction.

**Methods:** We searched PubMed, Cochrane CENTRAL Register and ClinicalTrials.gov (inception through July 21, 2021) for studies evaluating the outcomes of atherectomy in patients with severe left ventricular dysfunction. We used both random-effect model to calculate risk ratio (RR) with 95% confidence interval (CI). Myocardial infarction (MI), all cause and cardiovascular mortality, total vessel revascularization (TVR) were the major outcomes.

**Results:** A total of 6 studies consisting of 2238 unique patients were included in the analysis. The median follow-up duration was 22.4 months. When atherectomy in patient with reduced ejection fraction was compared with patients with moderate or preserved ejection fraction, there was significant increase in all-cause mortality [RR: 2.84; 95% CI: 1.16-6.95; P 0.02], and cardiovascular mortality [RR: 4.27; 95% CI: 1.68-10.83; P 0.002]. Comparison of atherectomy between both groups did not show any significant difference in rates of MI [RR: 1.74; 95%CI: 0.95-3.18; P 0.07] and TVR [RR: 0.75; 95% CI: 0.39-1.42; P 0.37].

**Conclusion:** This meta-analysis suggests that patients with moderate and preserved EF did better with atherectomy in terms of all-cause mortality and cardiac mortality.

**Key Words**: atherectomy, reduced ejection fraction, preserved ejection fraction

**Figure: Forest plot of Myocardial Infarction**

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