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Original Article

Meta-analysis comparing radial versus femoral approach in patients 75 years and older undergoing percutaneous coronary procedures

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ABSTRACT

Introduction: Elderly patients (≥75 years) undergoing coronary angioplasty are increasing. Meta-analyses have shown the benefits of radial access which might reduce hospital stay by decreasing access site complications with associated secondary benefits, however, the population over the age of 75 years were not a large part of the cohort and may behave differently due to increased atherosclerotic burden and age-related vascular changes. In addition, complications unique to this age group such as delirium and deconditioning might occur which could have a bearing on the outcome.
Methods: We searched Pubmed, SCOPUS, Medline, Dynamed, Cochrane. The search terms used were femoral and radial, femoral versus radial, radial or femoral access site, radial or femoral comparison. There were no restrictions.
Results: There was a significant decrease (85%)in the incidence of access site complications in the radial group. The time to achieve ambulation was lower by 14.25 h (8.86–19.56 h). However, the incidence of crossover (in effect failure to perform catheterization by radial access) from radial to femoral was significantly higher. Radial access was associated with longer procedural times (2.75 min) and increased contrast dose however, there was no statistical difference in the fluoroscopy time between the two.
Conclusions: Radial access has similar benefits in elderly patients as those under the age of 75 and may be beneficial in patients at risk of delirium or deconditioning. However, crossover rates, contrast dose and procedure time were higher. It is conceivable that as experience is gained, these rates will diminish.

1. Introduction

Across the world the population over the age of 75 years is growing at a faster rate than those over 60.[1] With better access to interventional cardiac procedures, the number of elderly (≥75 years) undergoing coronary angioplasty has increased and it reflects the changing demographic profile.

Historically, femoral artery has been the preferred vascular access site for cardiac catheterization over radial access. However, radial access is gaining extensive popularity[2] due to the benefits of earlier ambulation, fewer access site complications and decreased rates of bleeding.[3] These advantages in turn reduce mortality, hospital stay and improve the quality of life.[4,5]

The elderly are a unique group with increased atherosclerotic burden due to longstanding metabolic diseases which is bound to influence the access site complications rates. Age related vascular and cerebral changes might increase the propensity for deconditioning and delirium unique to this age group. With these factors in mind we decided to conduct an outcome meta-analysis of studies that have either studied Patients ≥75 years exclusively or had this subgroup in their studies.

2. Methods

We searched Pubmed, SCOPUS, Medline, Dynamed, and Cochrane. The search terms used were femoral and radial, femoral versus radial, radial or femoral access site, radial or femoral comparison. There were no restrictions. The details of the search are illustrated in Tables 1 and 2.

2.1. Data extraction

Data was independently abstracted into a standardized form from all the studies included.[6–14] The following data were

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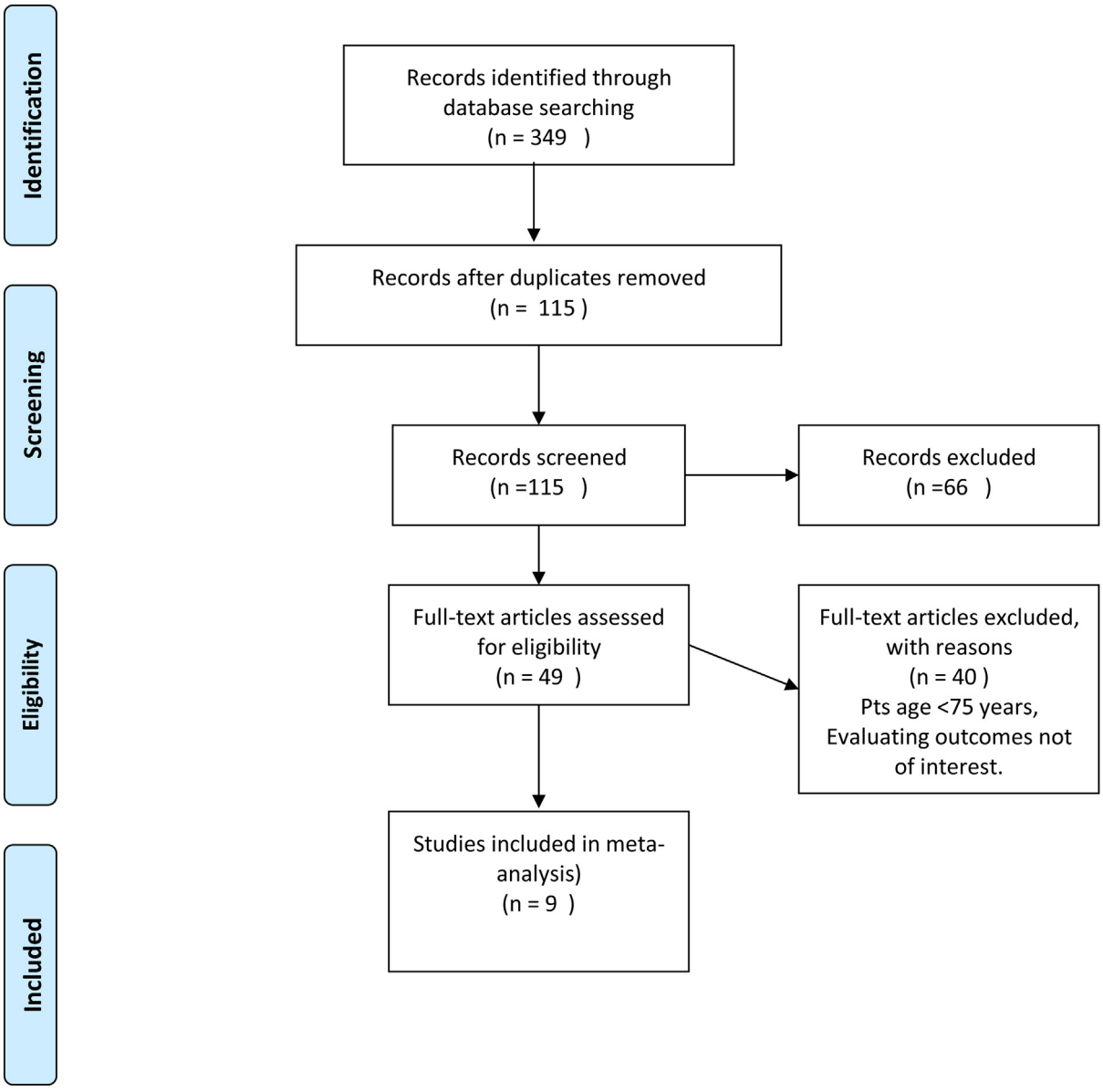
Table 1
PRISMA flow diagram.



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

collected: study design, year of publication, country of the population studied and the primary reported outcome.

Additional data related to cannulation site crossover, periprocedural myocardial infarction, local access site complications, major bleeding, time to ambulation, time, length of stay, procedure time and contrast dose was also extracted. Mortality related to procedure in either group was obtained. If the data was expressed in terms of median and interquartile range, authors were contacted for the mean and SD values. However, if authors did not reply, as a last resort we estimated the mean using the validated formula: mean = $(2m + a + b)/4$, where m is the median and a and b are the 25th and 75th centiles respectively).[15] The standard deviation (SD)

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