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Retroaortic Right Internal Thoracic Artery Grafting: Predictors of Circumflex Artery Accessibility

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Background:

Recent interest has focused on left-sided bilateral internal thoracic artery (BITA) grafting, nevertheless, the choice of configuration remains undetermined. Concerns regarding inability to reach circumflex artery (Cx) targets restrict the selection of the retroaortic RITA technique. We sought to delineate predictors of RITA accessibility, distribution of Cx targets and related outcome.

Methods:

861 patients undergoing left-sided skeletonized BITA grafting (2006 and 2011) were grouped by the configuration, retroaortic RITA (n=300) or T-grafts (n=561). Morphological and demographic data were compared. Subgroup analysis by Cx targets was further performed.

Results:

Patients undergoing retroaortic RITA were taller (p=0.006). The likelihood to undergo retroaortic RITA correlated with height in both genders (LOESS curves by logistic regression); but not with age, gender, weight, body mass index or surface area (BSA). For corresponding height beyond 158 cm, the probability in women was higher than in men (Figure 1). There was no difference in morphological or demographic profiles between patients undergoing proximal (first marginal, M1, or ramus intermedius) and distal Cx (M2, M3 or sequential M1-M2) targets (p=NS). Distal Cx targets were less frequent (15% vs 85%), however, were not correlates of early (OR 1, CI 0.9-1.1, p=0.942) or late adverse outcome (HR 0.81, CI 0.2-3.5, p=0.788).

Conclusions:

The likelihood is height-dependent in both genders irrespective of age, BMI or BSA. Women should not be excluded, particularly if taller than 158 cm. This technique is mainly implemented for proximal Cx targets, however, distal or sequential anastomoses are not independently associated with adverse outcome.