Independent factors associated with longevity of prosthetic pulmonary valves and valved conduits

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Caldarone and associates have reported on a 30-year series of patients who had undergone right ventricular outflow tract reconstruction with a prosthetic valve or valved conduit at one institution [see *J Thorac Cardiovasc Surg* 2000;120:1022]. The stated objective of this study is to identify risk factors for valve survival. However, results can be misleading if the only examined indicator of valve failure is valve replacement. Both patient mortality and the presence of valve insufficiency without replacement can be significant contributing factors in the analysis of valve failure.

As the authors admit, early deaths are largely the result of influences other than functional valve degeneration. However, early postoperative pulmonary insufficiency resulting from technical difficulties or conduit dilatation can be a contributing factor to early mortality. Late deaths can result from valve failure caused by degeneration or endocarditis, either independently or in combination. The authors state that late death was uncommon, but not nonexistent, in their study population and that those deaths were usually, but not always, attributed to causes other than valve failure. Valve-related late deaths, no matter how insignificant the occurrence rate, should be included in an analysis of valve failure.

The presence of valve insufficiency after reconstruction of the right ventricular outflow tract carries important prognostic implications. The early occurrence of pulmonary valve insufficiency is most commonly unrelated to valve degeneration. Nevertheless, its presence in the early postoperative period can affect long-term valve performance and lead to valve failure. Late valve insufficiency, even if not considered as a statistical end point for valve failure, should be presented because it significantly affects decisions regarding selection of the most appropriate valved conduit replacement for the right ventricular outflow tract.

Finally, description of surgical technique is of significance in any study that discusses surgical results. A reader can obtain full benefit from the published experience of others only if he or she can assess the article's relevance to his or her own practice. Valved conduit proximal and distal anastomotic technique, use of patch material or conduit extensions, suture technique, and cardiopulmonary bypass methods are of primary importance.

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