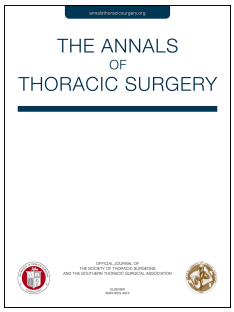

Should the Ross procedure be considered in infective aortic valve endocarditis?

Rajdeep Bilkhu, MRCS, Marjan Jahangiri, FRCS(CTh)

PII: S0003-4975(20)30392-1

DOI: https://doi.org/10.1016/j.athoracsur.2020.02.022

Reference: ATS 33591

To appear in: *The Annals of Thoracic Surgery*

Received Date: 29 January 2020

Accepted Date: 9 February 2020

Please cite this article as: Bilkhu R, Jahangiri M, Should the Ross procedure be considered in infective aortic valve endocarditis?, *The Annals of Thoracic Surgery* (2020), doi: https://doi.org/10.1016/j.athoracsur.2020.02.022.

Should the Ross procedure be considered in infective aortic valve endocarditis?

Invited Commentary:

Loobuyck and colleagues[1] report their experience of the Ross operation to assess the suitability of this procedure in the setting of active aortic valve endocarditis. Over a 27-year period, they performed 38 Ross procedures (1.4 cases per annum) for active endocarditis in a population with mean age of 33.9 years. They report good outcomes with an operative mortality of 5.3% in this unusually young group of patients. The incidence of perioperative neurological deficit was not reported. To avoid the problem of autograft dilatation, a disadvantage of the Ross procedure, the authors have modified their technique by placing the autograft inside a prosthetic vascular graft in some of their patients. Whilst this may prevent dilatation of the autograft, leaving a prosthetic graft in a patient with active endocarditis may have implications for recurrent infection and possible future re-do surgery.

The Ross procedure has the advantage of avoiding prosthetic material in the aortic position, with excellent haemodynamics, the theoretical reduced risk of infection as well as avoidance of anticoagulation. By using prosthetic material around the autograft, Loobuyck and colleagues counteract the benefits of avoiding possible reinfection. The authors rightly state that the procedure is rarely performed in the context of infective endocarditis. The Ross operation is not the first line treatment for infective endocarditis. Use of tissue valve, homograft or mechanical valve are the standard of care. Homograft has been considered an attractive alternative to prosthetic valve replacement, especially in the setting of aortic root abscess, dehiscence of the aorto-mitral continuity and disruption of the left ventricular outflow tract. It has a low incidence of reoperation for recurrent infection and good outcomes with peri-annular infection [2]. The debate about the ideal choice of valve in patients with aortic valve endocarditis

has been addressed in a recent meta-analysis by Flynn and colleagues [3]. In their analysis of 4393 patients, where 2336 and 2057 patients received mechanical or bioprosthetic valve respectively, there was no statistically significant difference in survival, reoperation for structural valve deterioration or recurrent endocarditis with one of the studies reporting follow up to 15 years. In addition, use of homograft did not confer any advantage regarding prevention of recurrence of infection over other valves [4]. Kim and colleagues reported 304 consecutive patients undergoing surgery for aortic valve endocarditis with 86 undergoing homograft, 139 undergoing mechanical and 79 undergoing tissue valve replacements. There was a significant difference in age between the groups, with those receiving tissue valves being older, mean age 59.8 years, versus 47.2 years and 55.6 years for mechanical and homograft valves respectively. At a median follow up of 29.4 months, there was no significant benefit in reinfection, reoperation for valve deterioration or survival.

Loobuyck and colleagues[1] should be commended for demonstrating the feasibility of the Ross in infective endocarditis in an unusually young cohort. However, for endocarditis, tissue or mechanical aortic valve replacement remain the standard of care with homograft aortic root replacement reserved for those with significant periannular and sub-annular involvement.

Rajdeep Bilkhu MRCS

Marjan Jahangiri FRCS(CTh)

Department of Cardiothoracic Surgery

St. George's Hospital

Blackshaw Road

London SW17 OQT, United Kingdom

email: marjan.jahangiri@stgeorges.nhs.uk

References:

1. Loobuyk V, Soquet J, Djahoum Moussa, et al. Active aortic endocarditis in young adults: long-term results of the Ross procedure. Ann Thorac Surg. 2020. In press.
2. Solari S, Mastrobuoni S, De Kerchove L, et al. Over 20 years experience with aortic homograft in aortic valve replacement during acute infective endocarditis. Eur J Cardiothorac Surg. 2016;50:1158–64.
3. Flynn CD, Curran NP, Chan S, et al. Systematic review and meta-analysis of surgical outcomes comparing mechanical valve replacement and bioprosthetic valve replacement in infective endocarditis. Ann Cardiothorac Surg. 2019;8:587–99.
4. Kim JB, Ejiofor JI, Yammine M, et al. Are homografts superior to conventional prosthetic valves in the setting of infective endocarditis involving the aortic valve? J Thorac Cardiovasc Surg. 2016;151:1239-1248.