Echocardiographic features of the normofunctional Labcor-Santiago pericardial bioprosthesis.

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Echocardiography was performed in 94 patients with a total of 99 normally functioning Labcor-Santiago bioprostheses, 62 in the aortic and 37 in the mitral position. The following variables were measured: peak and mean transvalvular velocities, peak and mean instantaneous pressure gradients as calculated from the modified Bernoulli equation, pressure half-time, cardiac index, stroke volume and effective orifice area (using continuity and Hatle equations). Regurgitation patterns were sought by transthoracic echocardiography (all valves) and, for selected mitral bioprostheses, by transesophageal echocardiography. Calculated mean aortic pressure gradient ranged from six to 10 mmHg and calculated effective aortic orifice area increased with ring diameter, with means of 1.27 cm² for the 19 mm valve and 2.58 cm² for the 27 mm valve. For mitral bioprostheses, mean pressure gradient ranged from 3.0 to 4.5 mmHg and calculated effective orifice area from 2.27 to 2.73 cm². Only central regurgitation was observed. The Labcor-Santiago pericardial bioprostheses created little resistance to forward flow. In the small aortic root their hemodynamic performance was as good or better than that of other currently available devices. It is hoped that this new design will contribute increased in vivo mechanical durability.

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