The relationship between structure and function: why does reshaping the left ventricle surgically not always result in functional improvement?


Abstract
Surgical strategies recently introduced to improve ventricular function have been based on the concepts of reduction of ventricular diameter, synchronization of myocardial activity, passive support of diastolic ventricular shape, and active support of systolic ventricular constriction. They have depended on several established theoretical assumptions, not all of which are totally valid. Clinical results have proved markedly variable. This is especially true for procedures designed to reduce the radius of the left ventricle. Some have reported up to 80% mortality, whereas others achieve results comparable with those for heart transplantation. Because of this, the methods runs risk to be rejected, or else, its more widespread application will be postponed until essential details concerning the basic concepts have been elucidated. It is these details which we discuss in this review.

Computers in Biology and Medicine 2003; 33:185