Changes in anti-heat shock protein 27 antibody and C-reactive protein levels following cardiac surgery and their association with cardiac function in patients with cardiovascular disease

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Abstract The relationship between serum anti-heat shock protein (Hsp)27 antibody and high sensitive C-reactive protein (hs-CRP) levels and indices of cardiac function were investigated in patients undergoing coronary artery bypass grafting (CABG) or heart valve replacement. Fifty-three patients underwent off-pump and on-pump CABG or heart valvular replacement in each group. Serum anti-Hsp27 titers and hs-CRP values were measured 24 h before and after the operation and at discharge. Echocardiography was performed before surgery and before discharge. The results were compared with values from 83 healthy controls. hs-CRP levels increased and anti-Hsp27 antibody decreased following surgery (P < 0.001 and P < 0.05, respectively), although these changes were independent of operative procedure (P = 0.361 and P = 0.120, respectively). Anti-Hsp27 antibody levels were higher at the time of discharge (P < 0.016). Only in coronary patients were anti-Hsp27 antibody titers and hs-CRP levels were compared among patients undergoing off-pump and on-pump CABG or valvular heart replacement. Fifty-three patients underwent off-pump, on-pump CABG, and heart valvular replacement in each group. Serum anti-Hsp27 titers and hs-CRP values were measured 24 h before and after the operation and at discharge. Echocardiography was performed before surgery and before discharge. The results were compared with values from 83 healthy controls. hs-CRP levels increased and anti-Hsp27 antibody decreased following surgery (P < 0.001 and P < 0.05, respectively), although these changes were independent of operative procedure (P = 0.361 and P = 0.120, respectively). Anti-Hsp27 antibody levels were higher at the time of discharge (P < 0.016). Only in coronary patients were anti-Hsp27 antibody levels negatively associated with E/E′ (r = −0.268, P = 0.022), a marker of pulmonary capillary wedge pressure. In conclusions, anti-Hsp27 antibody levels are associated with indices of cardiac function in coronary patients. Cardiopulmonary bypass had no significant effect on the induction of changes in anti-Hsp27 levels. Moreover, anti-Hsp27 antibody levels fell in all groups postoperatively; this may be due to the formation of immune complexes of antigen–antibody, and antibody levels were higher at the time of discharge.

Keywords Heat shock protein 27 · Valvular heart disease · Coronary artery bypass grafting · Cardiac function