Chronic Liver Disease and *Streptococcus bovis* Endocarditis

Str—The interesting report by Tripodi and colleagues [1] confirms prior reports of *Streptococcus bovis* endocarditis being associated with advanced age and involvement of native valves. However, the authors comment that their most interesting finding was a remarkable association with chronic liver disease. Caution appears warranted in concluding that there is such an association. Liver disease was due to viral hepatitis in most patients with *S. bovis* endocarditis and in all patients with other types of endocarditis. Chronic liver disease due to hepatitis B virus or hepatitis C virus typically develops over decades, so that the rates of liver disease would be expected to be higher among older individuals with these infections. Patients with *S. bovis* endocarditis were significantly older than those with non-*S. bovis* endocarditis, with a mean age difference of more than a decade. Although all patients underwent serological testing for hepatitis C and hepatitis B markers, results were not provided for patients without chronic liver disease, so the reader cannot determine whether viral hepatitis infection rates differed overall according to the microbial etiology of endocarditis.

In addition, more than three-quarters of patients with *S. bovis* endocarditis were seen since 2000. Judging on the basis of the reported prevalence of *S. bovis* endocarditis of 25.3% since 2000, the reported prevalence of 7% in the prior decade, and the numbers of cases, the proportion of cases of endocarditis that were due to *S. bovis* in the period since 2000 was significantly greater than in the preceding decade. The number of patients with chronic liver disease due to hepatitis C has increased (and will continue to increase) dramatically from 1990 through the first years of the 21st century [2]. Unfortunately, no multivariate analysis of findings that adjusted for age and calendar time was included in the study. Therefore, although the rate of liver disease in this study was very high among patients with *S. bovis* endocarditis, it is not clear from the data presented that the apparent association is not an artifact of older age and an increasing prevalence of chronic liver disease due to hepatitis in the population at risk.

Acknowledgment


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References


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Reply to Klein

Str—We thank Dr. Klein [1] for his comments on our article [2]. He raises the issue that the association between liver disease and *Streptococcus bovis* endocarditis observed in our study could be spurious because of several factors: (1) the older age of patients with *S. bovis* endocarditis, compared with those with non-*S. bovis* endocarditis, which could have led to a higher rate of liver disease among older individuals; (2) a supposed increased prevalence of hepatitis C in recent years, paralleled by an increasing number of cases of *S. bovis* endocarditis since 2000; and (3) the fact that results of testing for hepatitis C virus (HCV) and hepatitis B virus (HBV) markers were not provided for all patients. As stated in our article [2], all patients included in the study were screened for liver disease, including for HBV and HCV markers. Forty patients were seropositive for anti-HCV antibody or hepatitis B surface antigen positivity, and all had chronic hepatitis.

To specifically address the issue raised by Dr. Klein [1], we selected, from all patients with non-*S. bovis* endocarditis, a new control group of patients who were seen after 2000 and had a mean age similar to that of the patients with *S. bovis* endocarditis. This allowed us to overcome the potential influence on the results of patient age and increased prevalence of chronic hepatitis over time. The new control group included 59 patients (68% male), who had a mean age (±SD) of 58.9 ± 11.0 years (range, 36–90 years), which was similar to that of the group of patients with *S. bovis* endocarditis (since 2000, 23 patients, 78% males), who had a mean age (±SD) of 59.9 ± 8.3 years (range, 21–75 years). A higher prevalence of risk factors for viral hepatitis was observed in non-*S. bovis* endocarditis versus *S. bovis* endocarditis (intravenous drug use: 6% vs. 0%, respectively; previous cardiac surgery: 34% vs. 9%, respectively).

In the non-*S. bovis* endocarditis group, 12 patients (20.3%) had chronic liver disease (11 due to HCV infection and 1 due to ethanol abuse), whereas in the *S. bovis* endocarditis group, a significantly higher prevalence of chronic liver disease was observed (14 [61%] of 23 patients; *P* = .001). These data confirm that there was a strict association between chronic liver disease and *S. bovis* endocarditis that was independent of age and increasing prevalence of liver disease over time.

Although the incidence of HCV infection declined sharply in the late 1980s, a marked increase in the number of adults with advanced HCV-related chronic liver disease has been observed in the past few years [3]. Advanced liver disease may predispose patients to systemic bacteremia, because of portal-systemic blood shunting and impaired bacterial clearance by the