Incidence of and risk factors for infectious complications in the patients with Cardiac devices implantation

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Background: Cardiac device (pacemakers, implantable cardiac defibrillators [ICD], cardiac re-synchronized therapy [CRT]) implantation is one of the essential treatment for cardiac arrhythmias, and the implantation of those has been much increased recently. However, infectious complications related to the cardiac devices are the main reasons for device removal and patient morbidity. We planned to identify the incidence of infectious complications among the patients with cardiac devices implantation and analyze the risk factors for infectious complication.

Methods: A retrospective analysis was conducted of 1307 patients (61.5±14.2 years-old, 49.6% male) with cardiac device implantation from January 1990 to April 2013. We analyzed the incidence of infectious complications during the follow-up period. To investigate risk factors associated with infectious complication, we conducted a 1:2 matched case-control study of patients with infectious complications and controls without infectious complications who had same implantation period and physician.

Results: Among 1307 patients, 12 patients were confirmed as device infection. Seven patients had pocket infection and 5 patients had infective endocarditis. Over a total of 9091.9 device-years, 12 (0.9%) patients were diagnosed with infectious complications; the incidence was 1.3/1000 device-years. ICD (5.1/1000 device-year) had the higher incidence of infectious complications than other cardiac devices, and no infectious complications were observed among the patients with CRT implantation. Mean duration from the time of implantation to infection was 2.02±1.65 years. In multivariate analysis, the number of prior procedures including wound revision or scar revision was independent risk factor for infectious complication (OR=4.0, 95% CI 1.08-14.53, p=0.038).

Conclusions: The infection was rare complication of cardiac device implantation. Our data showed that the repeated procedure was associated with infectious complications.