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Increasing incidence of cardiac device related endocarditis over the past ten years: a single center analysis

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Background: Cardiac device related infective endocarditis (CDIE) is an increasing problem in the current cardiology practice, related to high mortality and morbidity. Recent trends have shown an increase in cardiac device placement, which remains a risk factor for developing CDIE. We performed a retrospective analysis of all patients admitted to our hospital. The aim of our study was to identify a possible correlation between the amount of device placements and the incidence of CDIE.

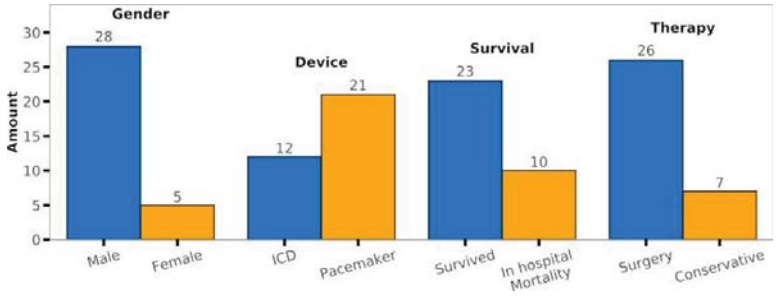
Methods: All patients, aged 18 years or above, diagnosed and treated for IE in our hospital in the 11 years between January 1st 2007 and December 31st 2017 were retrospectively identified. The amount of cardiac device placements was meticulously kept up to date by the administrative department. Due to the retrospective nature of our study no approval of the local ethics committee was required.

Results: A total of 33 patients with proven CDIE were identified There were no CDIE documented in 2007,2009 and 2010. 2008 showed 2 CDIE (16.7%) whereas the last 4 years of the study showed a mean incidence of 5.75 IE per year. Our population was predominantly male (84.8%) and nearly a third of the population died during hospital stay. The mean age of the population was 73.9 years old. Three quarters of the population underwent surgery and 24 patients out of these underwent device removal, the remaining 2 patients underwent valve replacement or catheter removal. Half of the patients had early-onset or procedure-related IE (<12 months post procedure). The remaining cases were defined as late onset IE. Overall, 80% of CDIE developed within 3 years after the procedure.

The most prevalent causative organisms in our CDIE population were Staphylococci (68%) followed by Streptococci (20%). Eight out of 33 cases appeared to be culture negative (24.2%).

We sought to correlate these findings to the amount of cardiac device procedures (de novo implantations and replacements) as of 2004 (to compensate for the possible 3-year delay). The number of CD procedures increased by nearly 400% over the course of these 14 years.

Conclusions: The incidence of CDIE has increased in our population over the past 11 years. This increase runs parallel with the expansion of the number of devices implanted. About half of CDIE occur within 1 year of the procedure defined as early onset CDIE, but the presence of a cardiac device remains a risk factor for IE even thereafter. Causative organisms in our study for CDIE specifically appear to coincide with the results from other studies done in more general populations, with Staphylococci remaining the most prevalent organisms. As patients with cardiac devices implanted appear to be at increased risk for IE, one might add these to the group of patients requiring IE-prophylaxis, especially because of the high mortality rate of IE, which appears to be even higher for CDIE.



Patient demographics