Cardiac implantable electronic device implantation and follow up at Third State Central Hospital of Mongolia

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Introduction: Background: Cardiac electronic implantable devices (CIED) implantation and follow up was officially licensed in December 2012 at the Third State Central Hospital of Mongolia. With the aid of the Luxembourg Government development project, the first arrhythmia specialist was prepared who have trained subsequent implanter and eventually Rhythmology team. After initiation of pacemaker implantation in December 2012, cardiac resynchronization therapy (CRT), implantable cardioverter defibrillator (ICD) and cardiac contractility modulation (CCM) therapies were introduced in 2015, 2016 and 2018 respectively. Objective: To analyze the current condition of CIED implantation and follow up in Mongolia.

Methods: We studied the medical history of all patients who have received CIED implantation at the Third State Central Hospital from 1st January 2013 to 31 December 2018. Basic medical information, dose area product (DAP) meter readings, fluoroscopy time, and complications of CIED recipients were analyzed.

Result: Out of 545 patients received CIED implantation, 5 subjects were excluded from the statistical analysis due to an inadequate recording of medical notes. A total of 540 patients (217 males and 318 females) with ages ranging from 5 to 97 (mean of 65 ± 14 years) were selected. In terms of diagnosis, 55% (n=300) of patients had sick sinus syndrome, 33.7% (n=184) had complete atrioventricular block, 3.8% (n=21) had congestive heart failure and 1.1% (n=6) had ventricular tachycardia. In 2013 - 2018, 510 pacemakers, 15 CRTs, 8 ICDs, and 2 CCMs were implanted at the Third State Central Hospital, and 6% of these cases developed complications. Major complications were pocket infection (56% or 18 cases), electrode mechanical damage (16% or 5 cases), hematoma (9% or 3 cases) and tension pneumothorax (12.6% or 4 cases) and cardiac perforation (6.4% or 2 cases). There was no procedure-related mortality. The mean fluoroscopy time was 206 ± 196 sec and the average x-ray dose was 10,425 ± 16,656 Gycm2. The mean fluoroscopy time was reduced from 659 sec in 2013 to 185 sec in 2018. X-ray dose was reduced from 25,088 Gycm2 in 2013 to 6,065 Gycm2 in 2018.

Conclusion: Mongolian first results of CIED therapy shows that excellent improvement in CIED therapy of local professionals but improvements are needed for the pocket infection prevention.