

Home Monitoring in children and young patients with a congenital heart disease and electronic devices

*Zartner P.A., Toussaint-Goetz N., Wiebe W., Schneider M.B.E.
Deutsches Kinderherzzentrum, Sankt Augustin, Germany*

Aim: In children and young adults self-perception and self-responsibility is not fully developed. An automated cardiac monitoring system can assist to early diagnose clinical problems or to anticipate device failure in the seriously affected patients with congenital heart diseases (CHD).

Population: Out of 150 patients 45 patients received a pacemaker (PM) or defibrillator (ICD) with the Home Monitoring (HM) option (Biotronik, Berlin, Germany). Patients' age at implantation ranged from 5 weeks to 37.6 years [median 12.4 years]. The individual follow up time from the daily monitoring data is 7 days up to 5.3 years (mean 1.7 years).

Results: The evaluation-period summarizes up to 80 patient years with successful transmission on 72% of the days, depending on the device type, with 666 clinical relevant event messages received. The messages can be grouped into patient/system related and emergency/follow-up messages. 17% of all messages were categorized as 'emergency' with the need to immediate react to the incoming data. Consequences were system or lead revisions, electro-physiologic studies, reprogramming of parameters, modifications in medication and sports or to further observe. Transmitted intracardiac electrograms (IEGM) reflect the proper function of the system as well as the actual cardiac electric performance. In 14 patients with an ICD, tachycardia with the need to treat was found in 7 patients. 5 patients had 19 episodes with anti-tachycardic pacing (ATP).

Conclusion: The day to day transmission of data routinely and continuously monitored in every PM or ICD markedly improves safety and reliability of electronic device therapy in young patients. High transfer rates increase the probability for early event detection and offer the chance for early intervention. Despite some impact on our clinical workload and legal aspects regarding liability and organization of procedural steps, this system improves therapy in our most critical patients.