Numerical Integration of Cardiac Device Parameters in the Electronic Patient Record

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Background: PM/ICD/CRT devices are among the most sophisticated therapeutic strategies in current cardiac practice. However analysis data from these devices are captured and stored in the patients medical record in a very primitive and fragmented way, most often on a single paper print-out. Occasionally device analysis data are available electronically in plain text or .pdf formats. Unfortunately these text formats do not allow further manipulation and analysis of the data easily.

We realized the first integration of cardiac device parameters into the electronic patient record in a numerical ouput format. Methods: We have modified the existing software platform I.P.A.D.2 (Implantable Pulse Generator and Defibrillator Dataplace, SJM) to capture all analysis data from the device analyzer and check the patients administrative data with the central hospital administrative system (HL7 communication). A predefined selection of twenty-five most clinically relevant device parameters are send in a numerical data format (HL7-ORU) to the electronic patient record (EPR) (MediWeb/MedAr, Agfa). Numerical device data transfer into the EPR has been realized for both in-clinic patient visits as well as for internet based remote device analysis. Results: We have transferred successfully numerical cardiac device data into the numerical data viewer (lab result viewer) of the EPR from more the 300 patients during clinic visits and 53 patients currently in remote follow up via Merlin@home. The numerical data format allows for easier viewing and integration of multiple datasets obtained over time including graphical representation. Conclusion: We have realized the first numerical integration of the most clinically relevant cardiac device parameters in the EPR. This format allows for easier and more efficient viewing and interpretation by the clinician, not possible with traditional .txt or .pdf file formats.