Abstrakt (EN)

Cardiac pacing is the only established treatment method of bradyarrhythmias. Most patients indicated for cardiac pacing need to have one lead implanted in the right ventricle. Activation sequence of the left ventricle during right ventricular pacing resembles the activation sequence in patients with left bundle branch block. When the proportion of paced cycles in the right ventricle reaches significant level, 10-20 % of patients develop pacing induced cardiomyopathy. Direct causal relationship with right ventricular pacing is supported by the improvement of subjective symptoms and objective parameters of the left ventricular function after the upgrade to cardiac resynchronization therapy (CRT). In patients with preexisting heart failure with reduced left ventricular ejection fraction, the best prevention of heart failure worsening is to implant CRT when antibradycardic indication to the right ventricular pacing occurs. In patients with normal or near normal left ventricular function, the situation is more problematic. CRT implantation in all patients with supposed high proportion of right ventricular paced cycles is not only more expensive, but also imposes higher demands on implanting centers and increases the occurrence of immediate as well as long-term complications which do not outweigh possible benefit. Direct His bundle pacing seems to be better method, but the success rate of implantation is still limited and not all patients with atrioventricular block are suitable candidates. In patients after the implantation, optimization of pacing parameters is useful. Currently only selected patients with CRT have their pacing parameters optimized. The value of optimization of other parameters than just atrioventricular interval in other patients than just those with CRT requires further studies.

The practical part is a pilot study with the aim to introduce a method of pacing parameters optimization based on noninvasive blood pressure measurement using Finometer PRO. Another aim was to evaluate the optimization of parameters which have not been optimized yet as is the pacing polarity and pacing energy. The study is based on the assumption that the increase of pacing energy or the change from unipolar to bipolar pacing could increase the size of virtual electrode and so contribute to the improvement of hemodynamic parameters. According to the results of the study, bipolar pacing is better than unipolar and in selected patients with unipolar pacing, higher pacing energy can be beneficial.