Heart Rate Variation in a CLS Pacemaker Patient during Chorus Singing and Evaluation of Effectiveness of CLS Function: A Case Report

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Purpose: We evaluated the effectiveness of Closed Loop Stimulation (CLS) function by comparing heart rate variations during chorus singing in one CLS pacemaker patient and two healthy people who sing chorus regularly.

Methods: Study subjects were two healthy people and a 71-year-old female sinus bradycardia patient with syncopal syndrome in whom a CLS pacemaker (Entovis DR/CLS, Biotronik, Nihon Kohden) had been implanted. Their heart rate variations while chorus singing with little body motion were simultaneously measured with 3 telemetry monitors.

Results: The two healthy people had maximum heart rates of 116 and 112 bpm. The CLS patient had a maximum heart rate of 110 ppm and heart rate variation as great as that of the healthy people. Heart rate variations in the two healthy people and the CLS patient showed a moderate correlation.

Conclusion: Our results suggest that in an elderly CLS patient the CLS pacemaker was able to respond to circulatory demands comparable to those of healthy people and increase its pacing rate during the same low body motion work and hobbies.

Keywords: closed loop stimulation, rate responsive pacing