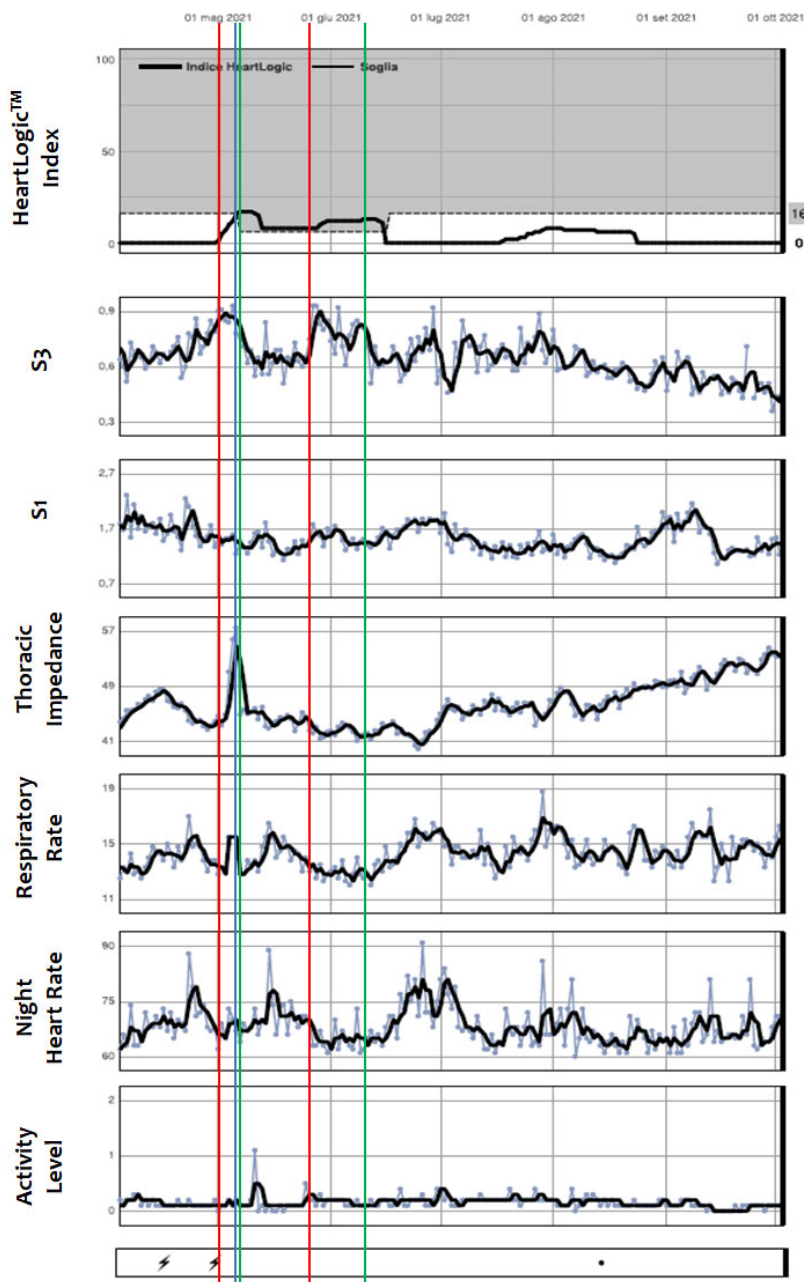


Case Of The Month #8 2021

A 67-year old man with hypertension, family history of ischemic heart disease, COPD and implanted with CRT-D device in 2013, underwent a LVAD implantation in February 2020. Few months later, on October 9th, 2020, the patient underwent the defibrillator replacement with a Vigilant X4 CRT-D device. Then, the Latitude remote monitoring system and HeartLogic algorithm was activated.



From February to May 2021 some ATP therapies and shocks were delivered on arrhythmic events while the HeartLogic index remained stable under the threshold.

On May 1st (first red line), during a non-heart failure related hospitalization, an ATP shock therapy was delivered and the HeartLogic index started to rise. The index crossed the programmed threshold on May 6th (blue line): heart sounds and night heart rate were the contributing sensors involved in the heart failure worsening.

Due to the previously recorded arrhythmic events the physician decided to increase the beta-blocker (bisopropol) dosage from 1.25 mg bid to 3.75 mg bid (first green line). Following this change, the HeartLogic index decreased, but without solving the alert state (HL index = 8).

On May 27th (second red line) the patient independently suspended the spironolactone therapy. The physician found it out only two weeks later, on June 12th, and prescribed to restore the therapy (second green line).

Immediately after the drug therapy restoration the HeartLogic index decreased and on June 16th the alert state was solved.

During the alert state, the LVAD programming was not changed (pump speed 12000 rpm).

The analysis of trends showed an increase in third heart sound and night heart rate with consequent increase of the HeartLogic index, and concomitant delivery of device therapies for ventricular arrhythmias.

Immediately after the increase in beta-blocker therapy, the third heart sound decreased to its baseline level, while night heart rate remained elevated.

After the spironolactone interruption the third heart sound increased again, resulting in further increase of the combined index.

The restoration of drug therapy allowed normalization of the third heart sound and recovery of the HeartLogic index with resolution of the alert.

This case highlights the high sensibility of the HeartLogic index to drug changes and in particular to the patient's therapy adherence. This confirms the usefulness of the index in the management of the patient's drug therapy even in the case of poor compliance with prescriptions.

Another interesting aspect is the sensitivity demonstrated by the index, despite the presence of an LVAD. In fact, the concomitant implantation of the system could have compromised the sensitivity of the algorithm, and in particular its ability to detect heart sounds. Instead, in this case it was precisely the variations in heart sounds that determined the alert status.

“Courtesy of “F. Spaziani” Hopital (Frosinone – ITALY)”

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