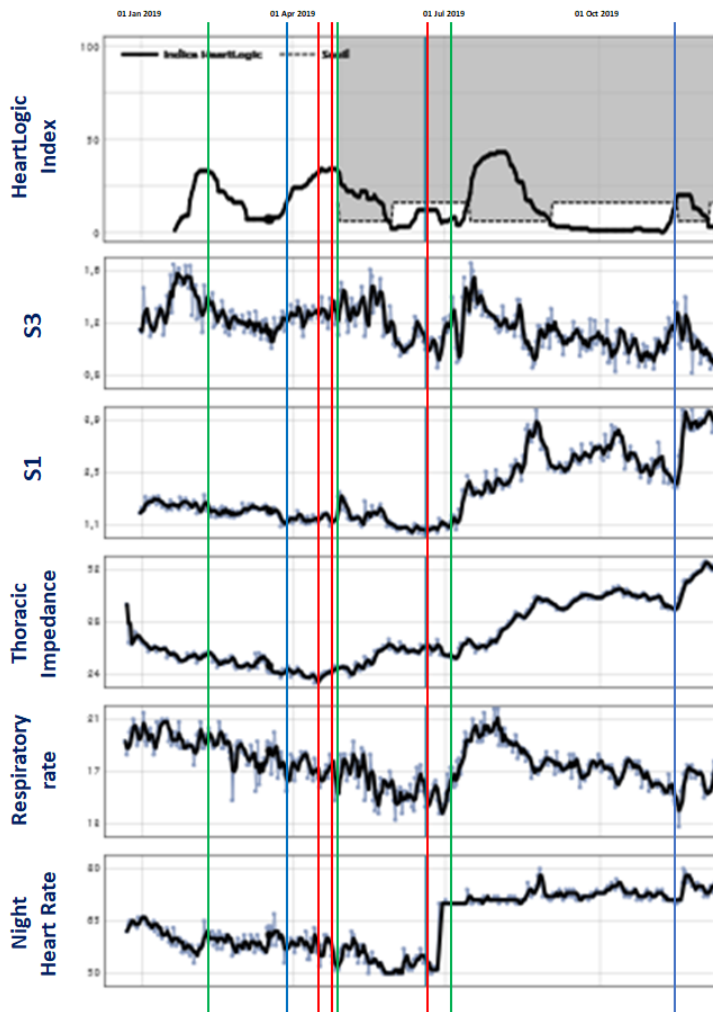


Case Of The Month _#5_ 2020

A 60 years-old woman underwent implantation of Resonate X4 CRT-D on December, 2018



In February, the patient underwent two ferric carboxymaltose injections because of iron-deficiency anemia, and concomitant increase in diuretic therapy was performed (*first green line*). At that time the HeartLogic index was off, but retrospective analysis of data collected in Latitude showed that an alert state was in place at that time and that the diuretic therapy was followed by a decrease in HeartLogic index.

On April 18th the patient reported dyspnea, signs of decompensation, weight increase and a NT-proBNP value of 5360 pg/mL was measured: intravenous diuretic therapy was provided at home for 10 days.

As no improvement in heart failure signs and symptoms was observed, the patient was hospitalized on April 28th (*first red line*). Peripheral edema and pleural effusion were detected and a NT-proBNP value of 4822 pg/mL was measured. The diuretic therapy was then increased and on June 14th the patient was discharged without signs or symptoms of decompensation.

HeartLogic™ was activated on April 30th 2019 , but physician became aware that an HeartLogic™ alert was in place since April 1st (*first blue line*) only at the end of hospitalization.

Few days after the discharge, HeartLogic index showed a marked increase and a new hospitalization (*second red and green line*) was required because of dyspnea, peripheral edema and symptoms of decompensation. Severe mitral insufficiency was observed and the patient was referred for valve surgery.

On July 5th (*third green line*) the patient underwent a Mitraclip implantation: at the time of surgery the NT-proBNP value was 13577 pg/mL. In the post-surgery weeks the HeartLogic index rose up to 44 (early August) and decreased under the threshold (September 1st). The NT-proBNP value decreased to 6359 pg/mL at mid August.

The patient was fine and the HeartLogic index was near zero till the beginning of November (*second blue line*) when a new HeartLogic alert was notified, concurrently with new signs and symptoms reported by the patient (dyspnea, weight increase and peripheral edema) and an NT-proBNP value of 2502 pg/mL.

This case is a good example of the close correlation between HeartLogic index and patient condition. For the majority of events occurred, the physician was not aware of the HeartLogic value, thus the analysis was blinded. The analysis of the HeartLogic trend showed that the index remained above the threshold for the entire hospital stay. The index declined to zero only after the valvular procedure, when the patient had reached a state of hemodynamic compensation.

The main contributors to the HeartLogic threshold crossings were the heart sounds that seemed also sensitive to the changes induced by the valve surgery. HeartLogic index seemed also sensitive to ICD programming changes, such as the increase in lower rate limit.

In this case HeartLogic index showed its ability to notify the congestion state of the patient and to detect the full restoration of the cardiac functionality.

Changes in HeartLogic index were also consistent with changes in NT-proBNP value, i.e. an important biomarker for heart failure monitoring.

Courtesy of Poitiers University Hospital – Poitiers (France)

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