

Case Of The Month #3 2022

A 76-year-old man with ischemic cardiomyopathy (LVEF < 24%), permanent atrial fibrillation, dyslipidemia, triple coronary artery bypass grafts, previous ACS that required 4 stents, and with Mitraclip implanted in 2016, underwent a Momentum EL dual-chamber ICD implantation in October 2019. The patient was enrolled in Latitude remote monitoring system and HeartLogic™ diagnostic algorithm was activated.

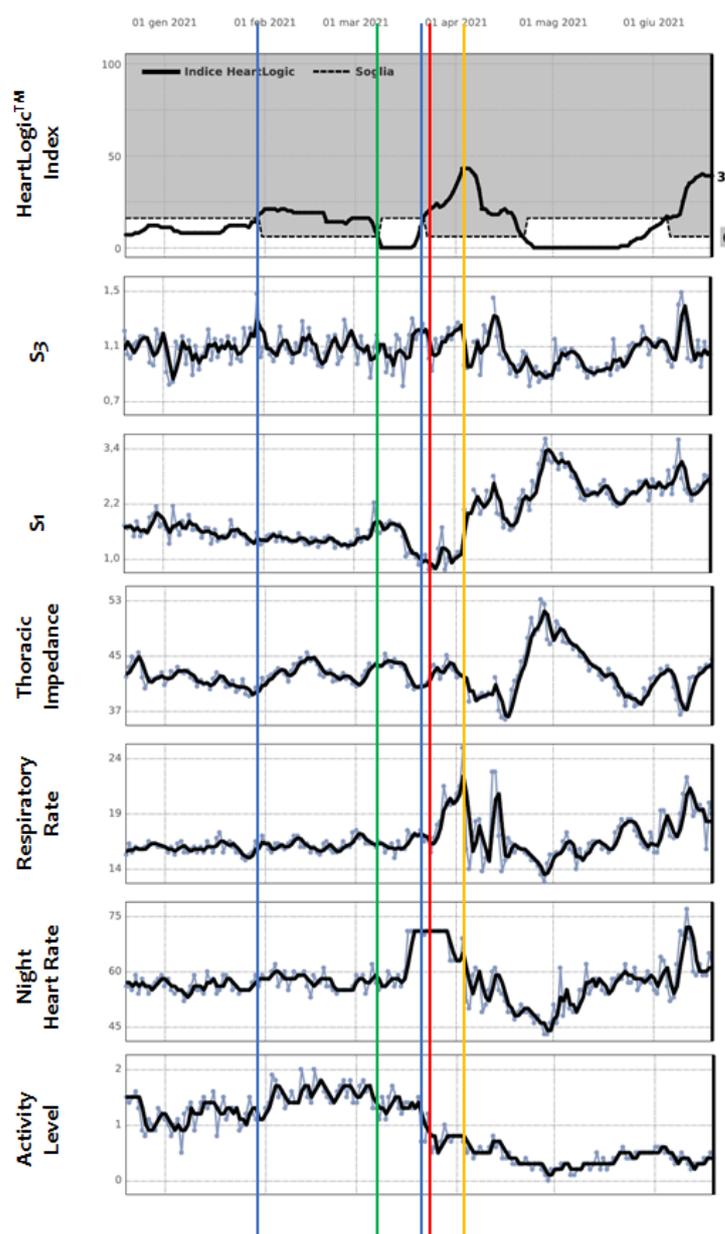


Fig.1: HeartLogic™ Report Trends

At the end of January 2020 (Fig.1 - first blue line) a HeartLogic™ alert has been notified to the center: the patient has been contacted by phone, and a change diuretic drug has been suggested. The patient was constantly monitored till the recovery of the HeartLogic™ index (Fig.1 - green line).

A new HeartLogic™ alert has been notified in late March 2021 (Fig.1 - second blue line), and the day after, the patient was hospitalized (Fig.1 – red line) for acute Heart Failure event. During hospitalization, in early April 2021, a CardioMEMS™ HF tool has been implanted (Fig.1 - yellow line).

Remote daily measurements from CardioMEMS™ were performed and first data reported high values in blood pressure trends (systolic pulmonary artery pressure (PAP)=60 mmHg; diastolic PAP=23 mmHg) in conjunction with a high value of HeartLogic™ index (43) (Fig.2 – first blue line). The two trends had a similar decrease and, at the end of April, the HeartLogic™ alert resolved while systolic PAP was around 40 mmHg and diastolic PAP around 18 mmHg (Fig.2 – green line).

A third HeartLogic™ alert was reported in early June (Fig.2 – second blue line) and a concomitant increase in CardioMEMS™ measured pressures have been observed, till peak values of 55 mmHg (systolic PAP) and 22 mmHg (diastolic PAP) in mid-June (Fig.2 – first red line). The HeartLogic™ peak value of 40 was observed a few days after (Fig.2 – second red line).

The physician contacted the patient by phone and decided to increase the Entresto dosage (46/51 mg) and introduce the SGLT2 drug therapy: a decrease in CardioMEMS™ values has been observed.

The last measurements provided at the end of June reported a new increase in systolic and diastolic pulmonary artery pressure (49 mmHg and 22 mmHg respectively) while HeartLogic™ alert remained high: the patient presented at ER department but unfortunately the day after he died of cardiac death.

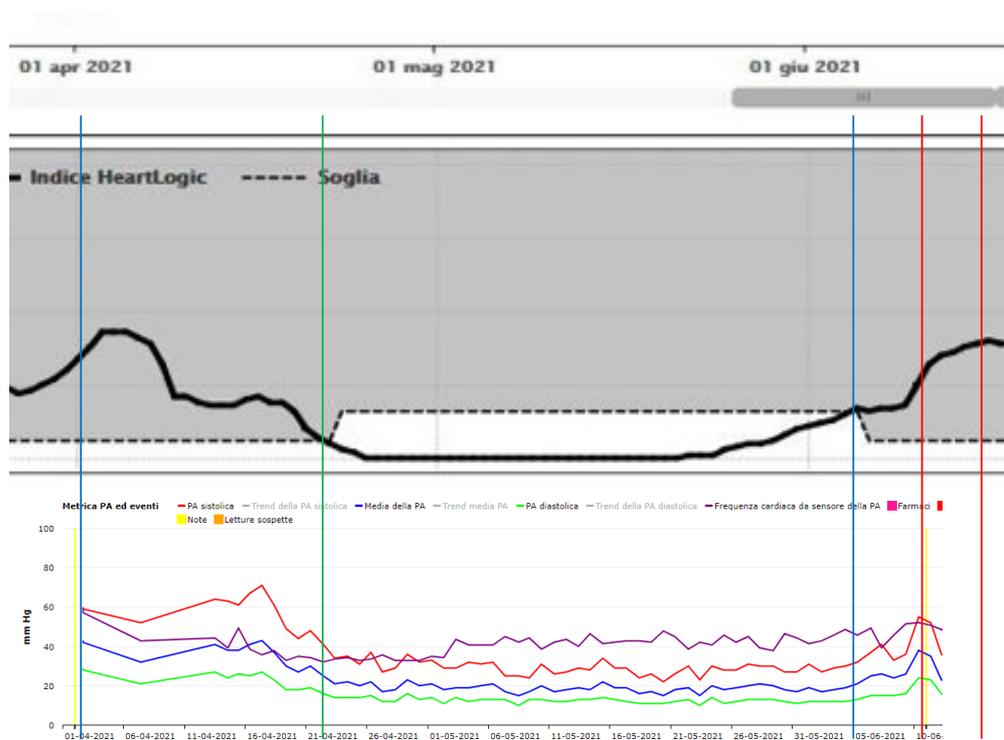


Fig.2: HeartLogic™ and CardioMEMS™ trends
(CardioMEMS legend: --- Systolic Pulmonary Artery Pressure; --- Diastolic Pulmonary Artery Pressure; --- Average Pulmonary Artery Pressure; --- Heart Rate)

The CardioMEMS™ HF System provides pulmonary artery (PA) pressure remote monitoring using a small sensor. Permanently implanted in the distal pulmonary artery, the sensor measures changes in pulmonary artery pressure; these changes are a surrogate measure for fluid retention in the lungs caused by worsening heart failure. Daily patient-initiated sensor readings are wirelessly transmitted to the clinic.

This case confirms the good association between HeartLogic™ and CardioMEMS™ in predicting heart failure decompensation.

It is interesting to observe how similar the trends are, despite the substantial difference in the parameters collected: CardioMEMS™ is a single-sensor that measures intracardiac pressure at a single point in time, while HeartLogic™ is a multisensor composite index calculated over multiple daily measurements.

Once again HeartLogic™ was able to early identify worsening of clinical conditions and confirm the improvement after therapy adjustment using a multiparametric approach. In this case, this ability was also confirmed by comparison with data from another validated tool for heart failure monitoring and management.

“Courtesy of “Policlinico Umberto I” Hospital (Rome– ITALY)”

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