Predicting Heart Failure patient events by exploiting saliva and breath biomarkers information

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Abstract
The aim of this work is to present a machine learning based method for the prediction of adverse events (mortality and relapses) in patients with heart failure (HF) by exploiting, for the first time, measurements of breath and saliva biomarkers. Tumor Necrosis Factor Alpha, Cortisol and Acetone. Data from 27 patients are used in the study and the prediction of adverse events is achieved with high accuracy (77%) using the Random Forest algorithm. As in the near future, biomarkers can be measured at home, together with other physiological data, the accurate prediction of adverse events on the basis of home based measurements can revolutionize HF management.

Keywords
Author Keywords: heart failure; event prediction; saliva biomarkers; breath biomarkers; data mining
KeyWords Plus: ELECTROCHEMICAL BIOSensor PLATFORM; IN-HOSPITAL MORTALITY; CARE BEHAVIOR SCALE; CYTOKINES DETECTION; RISK SCORE; CLASSIFICATION; MODEL; READMISSION; DIAGNOsis; SEVERITY

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