
Machine Learning Helps Predict Risk of Heart Failure



Heart failure is a common complication in patients suffering from Type 2 Diabetes (T2D). Recently, new medicines have been developed to offset these risks; however, finding effective strategies to identify which T2D patients are most at risk has been difficult.

Researchers at Brigham and Women's Hospital and UT Southwestern Medical Centre have developed a new machine-learning algorithm which can identify the risk of hospitalisation from heart failure for patients with T2D.

The ACCORD (Action to Control Cardiovascular Risk in Diabetes) trial took place over five years and analysed data from 8756 patients. Taking into account 147 different possible variables, including biological, clinical and demographic data, a machine learning algorithm was developed. The WATCH-DM risk score takes into account top factors including weight, age, hypertension and creatinine and HDL-C levels, diabetes control, QRS duration, MI, and CABG.

Results of the study found that 3.6% of patients (319) developed heart failure during the five years of the study. By using the WATCH-DM risk score, researchers found that the risk of heart failure within five years increased by 24% per 1-unit increment in the risk score.

Researchers are now working on developing the machine learning model to be used in the electronic health record of Brigham and Women's Hospital and also UT Southwestern Medical Centre. Implementation of the WATCH-DM risk scores in real-time could prove beneficial for centres focussing on personalised medicine as patient outcomes could be predicted immediately and prevention care initiated.

Senior author of the study Ambarish Pandey, MD, MSCS, talks of the success of the algorithm, which is available for clinical use online. Pandey emphasises how machine learning algorithms such as these are a step in the right direction for prevention strategies for heart failure T2D patients.

Source: [Diabetes Care](#)

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