New Score Allows Early Prediction of AMI Readmission Risk

A new "AMI READMITS" score—based on renal function, diabetes, and low blood pressure, among other factors in the first 24 hours in the hospital—identifies patients at high risk of readmission after acute myocardial infarction, reports a study in the open-access *Journal of the American Heart Association*.

Using data from consecutive AMI hospitalizations to six diverse Texas hospitals in 2009–2010, the researchers sought to develop a pragmatic model to predict the risk of all-cause, nonelective hospital readmission within 30 days. The model was derived using data on 826 patients, 13% of whom were readmitted within 30 days. Two separate AMI-specific models were developed and evaluated: a "first-day" model using only data from the first 24 hours in the hospital and a "full-stay" model including data from the full hospital stay.

The first-day model, called AMI READMITS, consisted of seven predictors: renal function (serum creatinine greater than 2 mg/dL), elevated brain natriuretic peptide, age, history of diabetes, nonmale sex, absence of timely percutaneous coronary intervention; and systolic blood pressure less than 100 mm Hg. This score provided good discrimination, C-statistic 0.75, and identified a broad range of risk categories, with average risks of 2.1% to 41.1% by decile. About one-third of patients classified as high risk (AMI READMITS score 20 or higher) had 30-day readmission, compared to 2% of those classified as low risk (score 13 or lower).

The full-stay model added three further predictors: intravenous diuretic use, anemia at discharge, and discharge to postacute care. However, it provided minimal net reclassification improvement and calibration. Both models appeared to have better performance compared to other models.

Readmission after AMI is a common problem, but current models have modest predictive value and do not provide readily actionable data to reduce risk. The new AMI READMITS score is a parsimonious model that includes clinically relevant risk factors and provides actionable data to identify patients at high risk of readmission during their first 24 hours in the hospital. The researchers note, "[C]linical severity measures directly related to the AMI (shock, heart strain or failure, renal dysfunction) and timely percutaneous coronary intervention were strong predictors of readmission risk" [Nguyen OK, et al. Predicting 30-day hospital readmissions in acute myocardial infarction: the AMI "READMITS" (renal function, elevated brain natriuretic peptide, age, diabetes mellitus, nonmale sex, intervention with timely percutaneous coronary intervention, and low systolic blood pressure) score. *J Am Heart Assoc* 2018; 7:e008882. DOI: 10.1161/JAHA.118.008882].

Renal Denervation for Persistent Hypertension on Medications: Randomized Trial

Renal denervation safely reduces blood pressure in patients with uncontrolled hypertension who continue taking antihypertensive medications, reports a trial in *The Lancet*.

The SPYRAL HTN-ON MED trial enrolled 487 adults with uncontrolled hypertension at 25 centers in Asia, Australia, Europe, and North America. All had uncontrolled hypertension, including an ambulatory systolic BP of 140 to 170 mm Hg despite at least 6 weeks on stable doses of one to three antihypertensive medications. After renal angiography, patients were randomly assigned to catheter-based renal denervation of the main renal arteries and branches or a sham procedure with sensory masking. All procedures were performed by an experienced proceduralist following a detailed treatment plan.

At follow-up visits, patients underwent 24-hour ambulatory BP monitoring, as well as urine and blood tests to assess adherence to prescribed medications. The current paper presents a proof-of-concept analysis of the first 80 patients treated: 38 assigned to renal denervation and 42 to the sham control procedure. The main efficacy outcome was change in ambulatory BP from baseline to 6 months, with a prespecified requirement for the patient to remain on the same antihypertensive drug regimen during this time. Major

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