

In one aspect, there is provided an *in vitro* method for evaluating the risk of mortality for a subject within one year, the method comprising:

determining a multimarker mortality risk score using one of the following algorithms for a subject based upon:

the age of the subject;

~~the level of ST2 in a biological sample from the subject, in combination with one or more of a natural logarithm of a level of a brain natriuretic peptide (BNP) in the subject; a level of troponin in the subject; a New York Heart Association (NYHA) score; a history of cardiovascular disease (CAD); a natural logarithm of a systolic blood pressure; a measure of renal function or a natural logarithm of a level of hemoglobin (Hgb), age~~

(1) the age of the subject (AGE) + the level of soluble ST2 in a biological sample from the subject (ST2) + a natural logarithm of a systolic blood pressure (ln_SBP) + a history of cardiovascular disease (CAD) + a natural logarithm of a level of a brain natriuretic peptide (BNP) in the subject (ln_NTpro-BNP)

(2) AGE + ST2 + ln_NTpro-BNP

(3) AGE + ST2 + a level of troponin in the subject (Troponin) + a New York Heart Association (NYHA) score (NYHA)

(4) AGE + ST2 + [Troponin OR NYHA]

(5) AGE + ST2 + [Troponin AND/OR NYHA] + a natural logarithm of a level of hemoglobin (ln_Hgb)

(6) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb

(7) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb + ln_SBP

(8) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb + ln_SBP + ln_NTpro-BNP;

and

comparing the multimarker mortality risk score to a reference multimarker mortality risk score;

wherein the presence of a multimarker mortality risk score that is at or above the reference multimarker mortality risk score indicates that the subject has an increased risk of mortality within one year.

Provided herein are methods of evaluating the risk of mortality for a subject (e.g., a subject having or diagnosed with heart failure) within a specific time period (e.g., within 3 months, 6 months, or a year or more (e.g., 2, 5, or 10 years) that include determining a multimarker mortality risk score for a subject based upon the age of the subject; the level of ST2 in the subject, in combination with one or more of a natural logarithm of a level of a brain

natriuretic peptide (BNP) in the subject; a level of troponin in the subject; a New York Heart Association (NYHA) score; a history of cardiovascular disease (CAD); a natural logarithm of a systolic blood pressure; a measure of renal function or a natural logarithm of a level of hemoglobin (Hgb), and age; and comparing the multimarker mortality risk score to a reference multimarker mortality risk score;

wherein the presence of a multimarker mortality risk score that is at or above the reference multimarker mortality risk score indicates that the subject has an increased risk of mortality within the specific time period, and the presence of a multimarker mortality risk score that is below the reference multimarker mortality risk score indicates that the subject has a decreased risk of mortality within the specific time period (e.g., within one year).

In some embodiments, the risk score is determined using one of the following algorithms:

(1) $AGE + ST2 + \ln_SBP + CAD + \ln_NTpro\text{-}BNP$

(2) $AGE + ST2 + \ln_NTpro\text{-}BNP$

(3) $AGE + ST2 + Troponin + NYHA$

(4) $AGE + ST2 + [Troponin \text{ OR } NYHA]$

(5) $AGE + ST2 + [Troponin \text{ AND/OR } NYHA] + \ln_Hgb$

(6) $AGE + ST2 + [Troponin \text{ AND/OR } NYHA] + \ln_Hgb$

(7) $AGE + ST2 + [Troponin \text{ AND/OR } NYHA] + \ln_Hgb + \ln_SBP$

(8) $AGE + ST2 + [Troponin \text{ AND/OR } NYHA] + \ln_Hgb + \ln_SBP + \ln_NTpro\text{-}BNP$.

In some embodiments, the level of ST2 is determined and compared to a threshold and the presence of a level at or above the threshold is scored as "1" and the presence of a level below the threshold is scored as "0". In some embodiments, the threshold level of ST2 is 35 or 50 ng/mL. In some embodiments, algorithm (1) or (2) is used and the threshold level of ST2 is 35 ng/mL. In some embodiments, algorithm

WHAT IS CLAIMED IS:

1. An *in vitro* method for evaluating the risk of mortality for a subject within one year, the method comprising:

determining a multimarker mortality risk score using one of the following algorithms for a subject based upon:

~~the age of the subject;~~

~~the level of ST2 in a biological sample from the subject, in combination with one or more of a natural logarithm of a level of a brain natriuretic peptide (BNP) in the subject; a level of troponin in the subject; a New York Heart Association (NYHA) score; a history of cardiovascular disease (CAD); a natural logarithm of a systolic blood pressure; a measure of renal function or a natural logarithm of a level of hemoglobin (Hgb), age~~

(1) the age of the subject (AGE) + the level of soluble ST2 in a biological sample from the subject (ST2) + a natural logarithm of a systolic blood pressure (ln_SBP) + a history of cardiovascular disease (CAD) + a natural logarithm of a level of a brain natriuretic peptide (BNP) in the subject (ln_NTpro-BNP)

(2) AGE + ST2 + ln_NTpro-BNP

(3) AGE + ST2 + a level of troponin in the subject (Troponin) + a New York Heart Association (NYHA) score (NYHA)

(4) AGE + ST2 + [Troponin OR NYHA]

(5) AGE + ST2 + [Troponin AND/OR NYHA] + a natural logarithm of a level of hemoglobin (ln_Hgb)

(6) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb

(7) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb + ln_SBP

(8) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb + ln_SBP + ln_NTpro-BNP;

and

comparing the multimarker mortality risk score to a reference multimarker mortality risk score;

wherein the presence of a multimarker mortality risk score that is at or above the reference multimarker mortality risk score indicates that the subject has an increased risk of mortality within one year.

~~2. The method of claim 1, wherein the risk score is determined using one of the following algorithms:~~

- ~~(1) AGE + ST2 + ln_SBP + CAD + ln_NTpro-BNP~~
- ~~(2) AGE + ST2 + ln_NTpro-BNP~~
- ~~(3) AGE + ST2 + Troponin + NYHA~~
- ~~(4) AGE + ST2 + [Troponin OR NYHA]~~
- ~~(5) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb~~
- ~~(6) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb~~
- ~~(7) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb + ln_SBP~~
- ~~(8) AGE + ST2 + [Troponin AND/OR NYHA] + ln_Hgb + ln_SBP + ln_NTpro-BNP~~

~~32. The method of claim 21, wherein the level of soluble ST2 is determined and compared to a threshold and the presence of a level at or above the threshold is scored as "1" and the presence of a level below the threshold is scored as "0".~~

~~43. The method of claim 32, wherein the threshold is 35 or 50 ng/mL.~~

54. The method of claim 43, wherein algorithm (1) or (2) is used and the threshold level of soluble ST2 is 35 ng/~~ml~~mL.

65. The method of claim 43, wherein algorithm (3) or (4) is used and the threshold level of soluble ST2 is 50 ng/~~ml~~mL.

76. The method of claim 1, wherein the subject has been diagnosed with heart failure.

87. The method of claim 1, wherein the reference multimarker mortality risk score represents a score corresponding to a low risk of death within one year or within five years.

98. The method of claim 1, wherein the sample comprises serum, blood, plasma, urine, or body tissue.

109. The method of claim 1, wherein the subject has a BMI of 25-29, a BMI of ≥ 30 , or renal insufficiency.

110. The method of claim 1, further comprising selecting the subject for inpatient treatment ~~discharging the subject or treating the subject on an inpatient basis~~ based on the presence of an increased risk of mortality.