Supplementary material

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Comparative Evaluation of Four Risk Scores for Predicting Mortality in Patients With Implantable Cardioverter-defibrillator for Primary Prevention

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SUPPLEMENTARY MATERIAL

ADDENDUM 1.

Atrial Fibrillation: a cardiac arrhythmia arising from the atrium with an atrial rate 300 bpm and an irregularly irregular ventricular response in the presence of conduction. Atrial fibrillation (AF) can be further characterized as: First detected AF; Paroxysmal AF: AF is self-terminating within 7 days of recognized onset; Persistent AF: AF is not self-terminating within 7 days, or is terminated electrically or pharmacologically; Permanent AF: cardioversion failed or not attempted.

Chronic Kidney Disease: defined as either kidney damage or glomerular filtration rate < 60 mL/min/1.73 m^2 for 3 months. Kidney damage is defined as pathologic abnormalities or markers of damage, including abnormalities in blood or urine tests or imaging studies.

Diabetes Mellitus: The American Diabetes Association criteria include documentation of the following:

1. Hemoglobin A1 ≥ 6.5%; or

2. Fasting plasma glucose ≥ 126 mg/dL (7.0 mmol/L); or

3. 2-h plasma glucose ≥ 200 mg/dL (11.1 mmol/L) during an oral glucose tolerance test; or

4. In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥ 200 mg/dL (11.1 mmol/L).

This does not include gestational diabetes.

Dyslipidemia: is defined by the National Cholesterol Education Program criteria and includes documentation of the following:

1. Total cholesterol greater than 200 mg/dL (5.18 mmol/L);

2. or low-density lipoprotein (LDL) greater than or equal to 130 mg/dL (3.37mmol/L); or

3. High-density lipoprotein (HDL) less than 40 mg/dL (1.04 mmol/L).

For patients with known coronary artery disease, treatment is initiated if LDL is greater than 100 mg/dL (2.59 mmol/L), and this would qualify as hypercholesterolemia.

Hypertension: defined by any one of the following:

1. History of hypertension diagnosed and treated with medication, diet and/or exercise.

2. Prior documentation of blood pressure greater than 140 mmHg systolic and/or 90 mmHg diastolic for patients without diabetes or chronic kidney disease, or prior documentation of blood pressure greater than 130 mmHg systolic and/or 80 mmHg diastolic on at least two occasions for patients with diabetes or chronic

kidney disease.

3. Currently on pharmacologic therapy for treatment of hypertension.

New York Heart Association Functional Classification for Heart Failure:

I. Patient has cardiac disease but without resulting limitations of ordinary physical activity. Ordinary physical activity (e.g., walking several blocks or climbing stairs) does not cause undue fatigue, palpitation, dyspnea, or anginal pain. Limiting symptoms may occur with marked exertion.

II. Patient has cardiac disease resulting in slight limitation of ordinary physical activity. Patient is comfortable at rest. Ordinary physical activity such as walking more than two blocks or climbing more than one flight of stairs results in limiting symptoms (e.g., fatigue, palpitation, dyspnea, or anginal pain)

III. Patient has cardiac disease resulting in marked limitation of physical activity. Patient is comfortable at rest. Less than ordinary physical activity (e.g., walking one to two level blocks or climbing one flight of stairs) causes fatigue, palpitation, dyspnea, or anginal pain.

IV. Patient has dyspnea at rest that increases with any physical activity. Patient has cardiac disease resulting in inability to perform any physical activity without discomfort. Symptoms may be present even at rest. If any physical activity is undertaken, discomfort is increased.

Peripheral Arterial Disease: it was considered to be present if a patient had an intervention on the carotid arteries or lower extremities, thoracic or abdominal aorta, or clinical claudication.

Refractory Heart Failure: defined as death with decompensated HF that failed to respond to treatment, in the absence of any other cause of death.

Sudden Death, defined as the sudden, unexpected death of a patient who until then had been considered stable. Sudden deaths could be either witnessed (with or without documentation of arrhythmia) or unwitnessed (if the patient had been seen within the 24 hours preceding death but had shown no premonitory HF, myocardial infarction, or other clear cause of death.

Smokeless: indicates if the patient uses smokeless tobacco currently or has quit within the past 12 months.

ADDENDUM 2.

Implantable cardioverter-defibrillator indications:

Class I

1. Implantable cardioverter-defibrillator (ICD) therapy is indicated in patients who are survivors of cardiac arrest due to ventricular fibrillation or hemodynamically unstable sustained ventricular tachycardia (VT) after evaluation to define the cause of the event and to exclude any completely reversible causes. (Level of evidence: A)

2. ICD therapy is indicated in patients with structural heart disease and spontaneous sustained VT, whether hemodynamically stable or unstable. (Level of evidence: B)

3. ICD therapy is indicated in patients with syncope of undetermined origin with clinically relevant, hemodynamically significant sustained VT or ventricular fibrillation induced at electrophysiological study. (Level of evidence: B)

4. ICD therapy is indicated in patients with left ventricular ejection fraction less than or equal to 35% due to prior myocardial infarction who are at least 40 days post–myocardial infarction and are in New York Heart Association (NHYA) functional Class II or III. (Level of evidence: A)

5. ICD therapy is indicated in patients with nonischemic dilated cardiomyopathy who have an left ventricular ejection fraction less than or equal to 35% and who are in NYHA functional Class II or III. (Level of evidence: B)

6. ICD therapy is indicated in patients with left ventricular dysfunction due to prior myocardial infarction who are at least 40 days post–myocardial infarction, have a left ventricular ejection fraction less than or equal to 30%, and are in NYHA functional Class I. (Level of evidence: A)

7. ICD therapy is indicated in patients with nonsustained VT due to prior myocardial infarction, left ventricular ejection fraction less than or equal to 40%, and inducible ventricular fibrillation or sustained VT at electrophysiological study. (Level of evidence: B)

Class IIa

1. ICD implantation is reasonable for patients with unexplained syncope, significant left ventricular dysfunction, and nonischemic dilated cardiomyopathy. (Level of evidence: C)

2. ICD implantation is reasonable for patients with sustained VT and normal or near-normal ventricular function. (Level of evidence: C)

3. ICD implantation is reasonable for patients with hypertrophic cardiomyopathy who have 1 or more major† risk factor for SCD. (Level of evidence: C)

4. ICD implantation is reasonable for nonhospitalized patients awaiting transplantation. (Level of evidence:

C)

Class IIb

1. ICD therapy may be considered in patients with nonischemic heart disease who have a left ventricular ejection fraction of less than or equal to 35% and who are in NYHA functional Class I. (Level of evidence: C)

2. ICD therapy may be considered in patients with syncope and advanced structural heart disease in whom thorough invasive and noninvasive investigations have failed to define a cause. (Level of evidence: C)

3. ICD therapy may be considered in patients with a familial cardiomyopathy associated with sudden death. (Level of evidence: C)

4. ICD therapy may be considered in patients with left ventricular noncompaction. (Level of evidence: C)