



Soroka Acute Myocardial Infarction (SAMI) score predicting 10-year mortality following acute myocardial infarction (AMI)

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No conflict of interest

Background

- As short-term survival from AMI improves, better understanding of the long-term natural history and risk stratification becomes more important

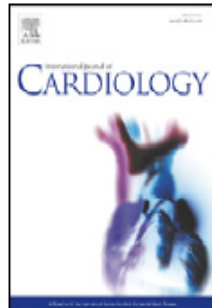
International Journal of Cardiology 154 (2012) 173–179



Contents lists available at [ScienceDirect](#)

International Journal of Cardiology

journal homepage: www.elsevier.com/locate/ijcard



A new risk score predicting 1- and 5-year mortality following acute myocardial infarction

Soroka Acute Myocardial Infarction (SAMI) Project

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Methods

- **Study population:**
2772 AMI patients discharged from Soroka Medical Center during 2002-2004
- **Data collection:**
demographic and clinical data obtained from the hospital's information systems.
- **Follow-up:**
up to 10.5 years (median 8.1 years)
- **End point:**
all-cause mortality

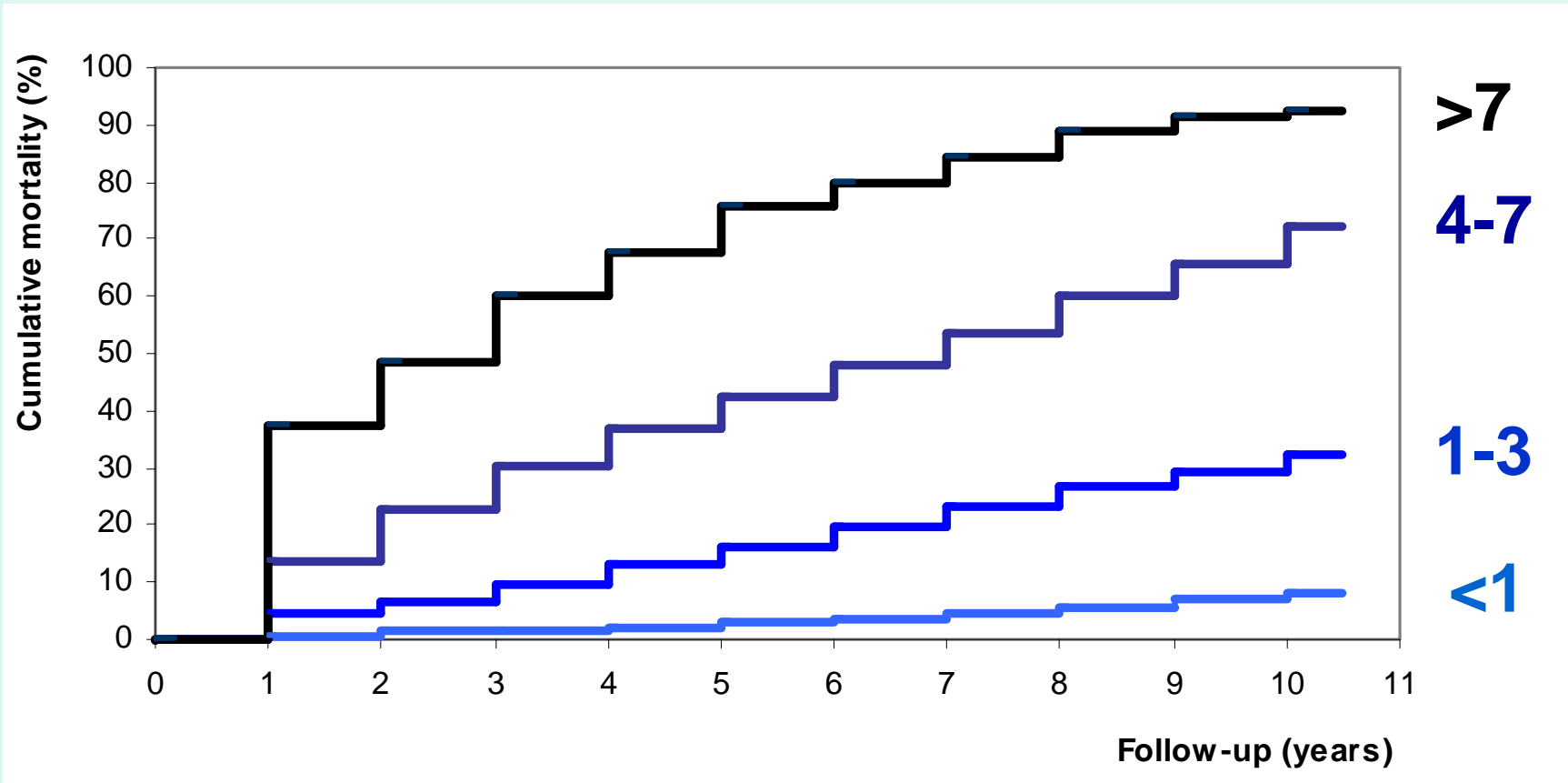
Results

10-years cumulative mortality = 51.4%

Variable	Original weight
<i>Age, years</i> ▪ 65-75	2
▪ >75	4
<i>Echocardiography study findings</i> ▪ Abnormal	4
▪ Missing	2
<i>Plasma sodium,</i> ▪ <135 mEq/L	2
<i>Intervention for AMI</i> ▪ CABG	-6
▪ Thrombolytic /PCI	-3
<i>Groups of diseases</i>	
• Renal Diseases	2
• Anemia	2
• Obesity	-2
• Other non-cardiovascular co-morbidities	3

Results

Cumulative mortality (%) during the follow-up period according to the adjusted SAMI index score categories



ROC = 0.942

Conclusions

- **The study expands the applicability of the SAMI risk score for long-term risk stratification**
- **It extends and updates current information on determinants of long-term prognosis following an AMI**
- **The SAMI score parameters that were generated for a relatively short-term prognosis were proven to be valid and accurate for a long-term period**

Study Population

Demographic Characteristics

Age, years (Mean; SD)	66±13.5
Gender Male	69%

Administrative Characteristics of Hospitalization

Duration of hospitalization, days (Mean; SD)	9.7±7
Treated in ICCU	68%

Study Population

Performance of Diagnostic Procedures %

Echocardiography 75

Angiography 61

Intervention

CABG (%) 8.2

Other Reperfusion (%) 43

Study Population

Groups of Discharge Codes	%
Hyperlipidemia	59
Hypertension	52
Tobacco use	40
Diabetes Mellitus	36
Obesity	20
Anemia	20
Old MI	19
Renal diseases	19

Index Scale - Parameters and Weights

	Parameter	Weight
Age	65-75 years / 75+ years	1 / 3
<i>During Hospitalization:</i>		
<i>Blood Tests</i>	Hyponatremia	1
	Hyperkalemia	1
<i>Echocardiography</i>	Left Ventricular Dysfunction (Severe)	2
	Left Ventricular Hypertrophy (Concentric or Significant)	2
	Mitral Regurgitation (Moderate or Severe)	3
	Pulmonary Hypertension (Moderate or Severe)	2
<i>Intervention</i>	CABG / Other Reperfusion	-4 / -2

If echocardiography wasn't performed, add 1 Point and ignore these parameters:

Index Scale - Parameters and Weights

Parameter	Weight
<i>At discharge: Groups of Diseases</i>	
Old Myocardial Infarction	1
Renal Diseases	1
Obesity	-1
Gastro-Intestinal Bleeding	3
Anemia	1
COPD	2
Malignant Neoplasm	3
Alcohol or/and Drug Addiction	3
Neurological Disorders	3
Schizophrenia or Psychosis	3

Calibration

For each rise of one point, the mortality increased by:

- **1 year follow-up:** 1.39 (95% CI: 1.33-1.45) – training set
1.31 (95% CI: 1.24-1.38) – validation set
 - **5 years follow-up:** 1.41 (95% CI: 1.37-1.45)
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- **10 years follow-up:** 1.25 (95% CI: 1.23-1.26) – original score
1.32 (95% CI: 1.30-1.34) – adapted score

Discrimination - Area Under the ROC Curve

- 1 year follow-up: 0.866 - training set
0.839 - validation set
 - 5 years follow-up: 0.858
-
- 10 years follow-up: 0.833 - original score
0.942 - adapted score

The c-statistic is high compared with other risk models that ranged between 0.65 and 0.81