

## Risk factors for mortality in diabetic patients discharged from hospital

September 2 2020



Risk factor Demographic	diabetes subpopulations	-	al diabetes populations
Demographic	Number of studies & Ref	Risk Factor	No.& Ref
Age	7 <sup>12,13,17,20,21,24,27,28</sup>	Age	2 <sup>16,29</sup>
Gender	1 12,46	Gender	2 <sup>16,29</sup>
Race	1 1 2 2		
Socioeconomic status			
Employment status	1 <sup>13</sup>		
Lifestyle			
Leisure time activity	1 <sup>13</sup>		
External factors			
		Weather conditions	141
Patient medical factors			
Co-morbidity	6 <sup>12,13,17,25,27,42</sup>	Co-morbidity	216,29,40
Malnutrition	1 <sup>21</sup>		9
Duration of diabetes	120		
Severity score	412,17,27,28		
	147		
DKA Severity			
Body mass index	3 <sup>13,17,23</sup>		
Gait speed	1 <sup>15</sup>		
Calf circumference	1 <sup>15</sup>		
Angina frequency	1 <sup>13</sup>		
Inpatient stay factors			
Procedure	2 <sup>13,21,46</sup>		
Admission diagnosis	1 <sup>21</sup>		
Length of stay	124		
Glasgow coma score (GCS)	128		
Mechanical ventilation	128		
Number of organs sup-	1 <sup>28</sup>		
ported			
No. of hospitalisations	120		
Which hospital admitted to	1 <sup>12</sup>		
Medication related			
Beta blocker	117	Pharmacy follow up	144
	1- 1 <sup>17</sup>	marmacy rollow up	1.
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ACEi/ARB blocker	119		
ACEi/ARB blocker Statins prior to AMI	119		
ACEi/ARB blocker Statins prior to AMI No. of medications at dis-	1 <sup>19</sup> 1 <sup>19</sup>		
ACEI/ARB blocker Statins prior to AMI No. of medications at dis- charge			
ACEi/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use	1 <sup>19</sup>		
ACEi/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use	1 <sup>19</sup> 1 <sup>25,45</sup>		
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel	1 <sup>19</sup> 1 <sup>25,45</sup>		
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel Laboratory results	1 <sup>19</sup> 1 <sup>25,45</sup>	Hba1c	122
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel Laboratory results Admission creatinine	1 <sup>19</sup> 1 <sup>25,45</sup> 1 <sup>27</sup>	Hbalc	122
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel Laboratory results Admission creatinine Fasting glucose	1 <sup>15</sup> 1 <sup>25,45</sup> 1 <sup>27</sup> 2 <sup>13,28</sup> 1 <sup>38</sup>	Hba1c	122
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel Laboratory results Admission creatinine Fasting glucose Sodium level	1 <sup>15</sup> 1 <sup>25,45</sup> 1 <sup>27</sup> 2 <sup>13,28</sup> 1 <sup>38</sup> 1 <sup>38</sup> 1 <sup>32</sup>	Hba1c	122
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35	1.35 1.25.45 1.22 2.35.28 1.31 1.32 1.32	Hba1c	122
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR	1.15 1.25.45 1.22 2.15.28 1.21 1.22 1.21 1.22	Hba1c	128
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura	139 125:45 122 235:28 139 141 142 121 122 122	Hba1c	128
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura	1.35 1.25.45 1.27 2.35.28 1.32 1.32 1.32 1.32 1.32 1.32 1.32 1.32	Hba1c	1 <sup>28</sup>
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin	139 125:45 122 235:28 139 141 142 121 122 122	Hba1c	228
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas)	1.35 1.25.45 1.27 2.35.28 1.32 1.32 1.32 1.32 1.32 1.32 1.32 1.32	Hba1c	225
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas) Admission haemoglobin	1.152 1.25.455 1.227 2.23.248 1.247 1.2	Hbaic	<b>2</b> 29
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas) Admission haemoglobin Anaemia	1.152 1.25.455 1.22 2.23.248 1.24 1.25 1.25 1.25 1.25 1.26 1.2	Hbaic	
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Billirubin PCO2 (on blood gas) Admission haemoglobin Anaemia Fibrinolysis	1.152 1.25.455 1.22 2.23.228 1.23 1.24 1.25 1.25 1.25 1.26 1.2	Hbaic	
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas) Admission haemoglobin Anaemia	1 125 425 1 122 1	Hbaic	
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas) Admission haemoglobin Anaemia Fibrinolysis	1 125 425 1 122 1		122
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas) Admission haemoglobin Anaemia Fibrinolysis	1 125 425 1 122 1	Glycaemic variability	124
ACEI/ARB blocker Statins prior to AMI No. of medications at discharge Insulin use Clopidogrel  Laboratory results Admission creatinine Fasting glucose Sodium level pH below 7.35 eGFR Albuminura Bilirubin PCO2 (on blood gas) Admission haemoglobin Anaemia Fibrinolysis	1 125 425 1 122 1		



Table of all identified risk factors. Credit: Institute of Digital Healthcare at WMG, University of Warwick

When patients are discharged from Hospital those with diabetes are at an increased risk of readmission and mortality, there are guidelines for discharging patients with diabetes to reduce these risks, however researchers from the Institute of Digital Healthcare at WMG, University of Warwick and Warwick Medical School have identified known risk factors for mortality in adult patients discharged from hospital with diabetes.

In the paper,'A Systematic Review Considering Risk factors for Mortality of Patients Discharged from Hospital with a Diagnosis of Diabetes', published in the Journal of Diabetes and its Complications, researchers identified 35 studies that considered the <u>risk factors</u> relating to mortality for <u>patients</u> discharged from hospital with diabetes, they analysed these studies and identified 48 significant risk factors for mortality.

The 48 risk factors are grouped into the following nine categories:

- Demographic
- Socioeconomic
- Lifestyle
- Patient medical factors
- Inpatient stay factors
- Medication related
- Laboratory results
- Glycaemic status



Professor Theo Arvanitis, from the Institute of Digital Healthcare at WMG, University of Warwick comments:

"The most common risk factor is in the demographic category of age and the second most important factor is comorbidity burden; this comes under the patient medical factors category, and means patients have more than one condition. We also identified BMI as a significant risk within the patient medical factors category, with those who were at the heavier end of the scales to be more at risk.

"Thirty-Seven of the risk factors we identified from one <u>research paper</u>. This tell us that this research in general is still very early, and more studies are needed to identify the importance and possibly any other risk factors. This could decrease the mortality rate of diabetics discharged from hospitals in the future."

**More information:** Teesta Mukherjee et al. A systematic review considering risk factors for mortality of patients discharged from hospital with a diagnosis of diabetes, *Journal of Diabetes and its Complications* (2020). DOI: 10.1016/j.jdiacomp.2020.107705

## Provided by University of Warwick

Citation: Risk factors for mortality in diabetic patients discharged from hospital (2020, September 2) retrieved 27 April 2024 from <a href="https://medicalxpress.com/news/2020-09-factors-mortality-diabetic-patients-discharged.html">https://medicalxpress.com/news/2020-09-factors-mortality-diabetic-patients-discharged.html</a>

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