

HbA1c testing in patients admitted with acute coronary syndrome (ACS): an opportunity to improve glycaemic control

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Background

- Diabetes is a common and powerful modifiable vascular risk factor (1,2); intensive glycaemic control in patients with diabetes is associated with a reduction in recurrent ACS and all-cause mortality (3)
- Undiagnosed diabetes is common and up to 20% of patients who experience ACS have undiagnosed diabetes (4)
- Current European guidelines recommend screening patients with ACS for diabetes but do not specifically recommend inpatient HbA1c measurement (5). We hypothesise that routine HbA1c measurement during inpatient admission for all patients with ACS would allow:
 - Identification of patients with known diabetes and inadequate glycaemic control
 - Increased diagnoses in patients with undiagnosed diabetes
- An audit was therefore undertaken to establish current practice in the measurement of HbA1c among patients admitted with ACS

Methods

- Retrospective analysis of the electronic medical records of all patients admitted with ACS during a two-month period to a large acute secondary care UK NHS Trust

Results

Patient demographics

122 patients were admitted with ACS

- Mean age was 69 years (range 34-92), 67% of patients were male and 33% were female
- 52% of the patients had a known diagnosis of diabetes and 48% did not have a known diagnosis of diabetes

HbA1c measurement

HbA1c was measured during admission (or <3 months prior) in 37 / 122 (30%) of patients

- HbA1c was measured in 47% of patients with known diabetes and in 12% of patients without known diabetes

	HbA1c measured during admission	HbA1c not measured during admission
Known diagnosis of diabetes	30 / 64 (47%)	34 / 64 (53%)
No known diagnosis of diabetes	7 / 58 (12%)	51 / 58 (88%)

Figure 1: Measurement of HbA1c during admission among ACS patients with and without a known diagnosis of diabetes

HbA1c results

Among patients with known diabetes, mean HbA1c was 70mmol/mol (range 41-118) and inadequate HbA1c control (defined as HbA1c \geq 64mmol/mol) was identified in 13 / 30 (43%)

Among patients without known diabetes, mean HbA1c was 41mmol/mol (range 31-45). No new diagnoses of diabetes were made

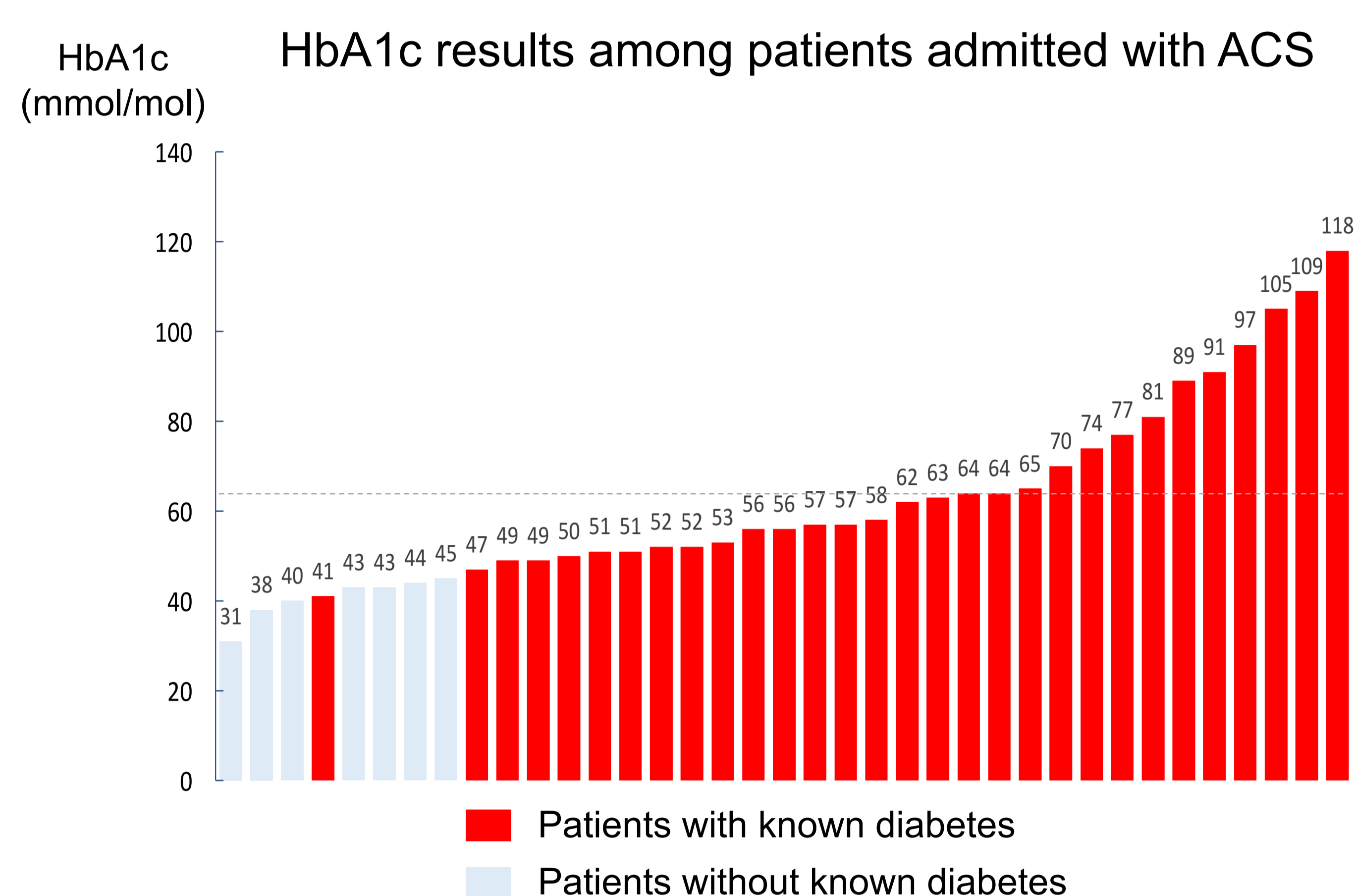


Figure 2: HbA1c results in the 37 patients in whom it was measured, including patients with and without known diabetes. The dashed line is at 64mmol/mol; inadequate glycaemic control was defined as HbA1c \geq 64mmol/mol and adequate glycaemic control was defined as HbA1c <64mmol/mol

Relationship of HbA1c results with outcomes

Outcomes were compared between all patients with inadequate glycaemic control (HbA1c \geq 64mmol/mol, n=13) and those with adequate glycaemic control (HbA1c <64mmol/mol, n=24)

- ACS re-admission rates were not significantly different (3/13 [23%] and 2/24 [8%] respectively, p=0.32) over mean 2.5 year follow-up. There were no in-hospital deaths
- Length of stay (LoS) was longer in the inadequate control group compared to the adequate control group (mean difference 2.4 days, 95% CI 0.1-4.6, p<0.05)

Conclusions

- HbA1c was measured in a minority of patients admitted with ACS and there is an opportunity for us to increase this
- When measured, HbA1c demonstrated inadequate glycaemic control in a large number of patients with known diabetes
 - This key finding demonstrates the value of routine measurement of HbA1c in this patient population
 - Patients with inadequate control can be identified and resources then deployed to help them to improve their glycaemic control
- The lack of new diagnoses made in patients without known diabetes in this study likely reflects the small number of patients in whom it was measured, as well as the success of primary care diabetes screening programmes in identifying patients with diabetes
- Patients with inadequate glycaemic control may be in a higher risk group. We found a longer LoS in this population; early identification and intervention to improve control in these patients may not only help to reduce LoS but also improve their long-term outcomes

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