

Does Diabetes influence a person's functional independence whilst in hospital?

Kay, J¹ Granger, C^{1,2} & Plumb S³

¹Royal Melbourne Hospital Physiotherapy Department

² The University of Melbourne, Melbourne

³ Royal Melbourne Hospital

Introduction: Diabetes, specifically Type 2 Diabetes Mellitus (T2DM) is a growing global epidemic, with a conservative estimate of 5% of Australians known to have T2DM. Growing evidence suggests that patients with T2DM are at risk of functional decline whilst in hospital.

At the Royal Melbourne Hospital (RMH) snapshots have taken place since 1996, with medical teams measuring inpatient data on one specific day, with a particular focus on RMH diabetes trends. In 2015, this was conducted, with the addition of functional status using the transfers and mobility sections of the Functional Independence Measure (FIM) scoring system. Literature has found that there is a positive correlation between functional decline and diabetes in the rehabilitation setting, however there is no literature in the acute setting.

Aim: To determine if patients with T2DM have a different physical function in an acute hospital setting compared with those without T2DM, using the Functional Independence Measure (FIM) scoring system.

Method: A point-prevalence study was conducted when data was collected for all available inpatients at RMH including recorded diagnosis of diabetes, gender, admission weights, heights (to calculate Body Mass Index (BMI), and functional status. Where this information was not available, the missing data was collected directly from the patient by Dieticians, Allied Health Assistants, Physiotherapists and Physiotherapy students under the guidance of Physiotherapists. FIM scores were conducted by the Physiotherapist who had received FIM training. Wards excluded from collection included emergency department, short stay unit, and palliative care. Patients who were non-English speaking background were excluded if family were not present or the required data was not recorded in the file.

Results: Of the patients admitted to RMH on that day, 76% (n=329) were available to be included. A rate of 25% (n=81) had a diagnosis of T2DM, which was found to be lower than the estimated Australian rate. Patients with T2DM had lower FIM2 (walking) scores, higher BMI, and were younger than patients without T2DM (Refer to Table 1 below).

Demographic characteristic	Type 2 Diabetes		RMH Cohort		Mean difference (95% CI)	p value
	n (%)	Mean (SD)	n (%)	Mean (SD)		
Age, years		71.92 (10.954)		60.82 (19.861)	11.096 (6.6-15.62)	<0.005
Gender, male	53 (65.4%)		197 (59.88%)			
FIM 1 (Sit to stand)		4.205 (2.483)		4.777 (2.452)	0.57 (0.06-1.20)	0.074
FIM 2 (Walking)		3.282 (2.517)		4.107 (2.583)	0.82 (0.17-1.48)	0.014
Body Mass Index (BMI), kg/m²		28.34 (7.65)		25.62 (7.71)	2.72 (0.73-4.70)	0.007
Length of stay, days		9.61 (12.24)		8.95 (14.15)	0.66 (2.74-4.06)	0.703

In the whole cohort (n=329), patients with higher FIM scores were more likely to be younger (r=0.20, p=<0.005), and have a shorter hospital length of stay (r=0.20, p=<0.005).

Discussion:

1. RMH had a lower rate of inpatients with a diagnosis of Diabetes than the estimated Australian rate
2. Acute hospital inpatients with T2DM were more likely to be older, have a higher BMI, and have an increased requirement of assistance for mobilising
3. Patients in RMH with higher walking FIM scores have a shorter length of stay, which further strengthens the need for Physiotherapy in the acute hospital setting.

Significance of findings to Allied Health:

Acute hospital inpatients' with T2DM have poorer physical function than the general inpatient population. This patient group may be important to target with Allied Health. Further research is required to determine the impact of Allied Health services for inpatients with T2DM.

