Glycemic control and its association with medication adherence among type 2 diabetes mellitus patients in Nepal

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Background

WHO reports that diabetes is steadily increasing around the world resulting in 1.5 million deaths in 2012. The high mortality rate is due to a number of life-threatening health problems caused by uncontrolled glycaemia. Medication adherence contributes significantly to good glycemic control and therefore, to reduce diabetes-related complications and death.

Aims

(i) To determine status of glycemic control

(ii) To determine status of medication adherence

(iii)To assess association between glycemic control and medication adherence.

Method

Study design : Hospital-based cross-sectional study

Sample size : 343, Consécutive sampling technique

Study site & duration: Dhulikhel Hospital, September to December 2016

Inclusion Criteria:

(i) Adult (≥18 years) type-2 diabetes patients

(ii) Under diabetes medicines for at least past 3 months

Data Collection tools:

(i) Face-to-face individual interview based questionnaire

-8-item Morisky Medication Adherence Scale *(MMAS-8) © 2007

(ii) Anthropometric measurements

(iii)Fasting blood sugar (FBS) and glycated hemoglobin (HbA1c) reports

Statistical Tools:

(i) Descriptive analysis

-Mean (Standard Deviation) and Median (IQR) for continuous data

-Percentage (frequency) for categorical data

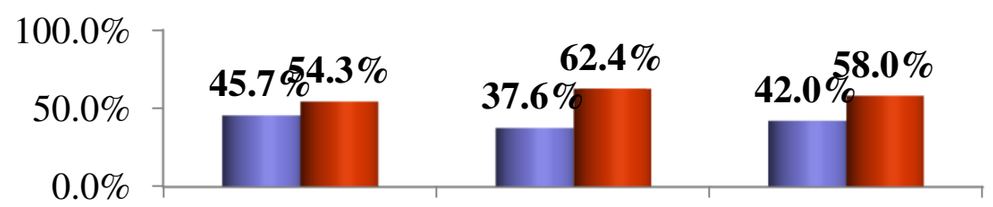
(ii) Analytical Tools

- Model 1: Bivariate analysis
- Model 2: Multivariate linear regression adjusted for socio-demographic characteristics (age, education, occupation and annual household per capita income)
- Model 3: Multivariate linear regression adjusted for socio-demographic characteristics and clinical characteristics (logarithm of medicine intake duration, attendance of diabetes counseling, types of diabetes medicines)

Results

Mean age of respondents was 55.8 years. Average FBS was 147.9 (SD: 57.3) mg/dl and average HbA1c among 198 participants was 7.8 (SD: 1.8) %. The mean MMAS score was 7.4 (SD: 1) with 61% high, 32% moderate and 7% low adherence. Table 1 shows association between glycemic control and medication adherence

Chart 1. Status of glycemic control (FBS)



Conclusion

The study concluded that emphasizing on medication adherence among type 2 diabetes patients may result in good blood sugar control.

Table 1. Association between glycemic control and medication adherence (Outcome: Fasting blood sugar in mg/dl)

Characteristics	Model 1 Bivariate analysis			Model 2 Adjusted for socio demographic Variables			Model 3 Adjusted for socio demographic & clinical history		
	Beta	95% CI	p- value	Beta	95% CI	p-value	Beta	95% CI	p-value
Medication adherence	Reference - Moderate/Low adherence (<8)								
High adherence (=8)	-10.73	(-23.16, 1.70)	0.09	-14.29	(-28.82, 0.24)	0.05	-14.32	(-28.47, -0.16)	0.047
Age, years	-0.33	(-0.86, 0.21)	0.23	-0.43	(-0.98, 0.12)	0.23	-0.79	(-1.36, -0.24)	0.006
Education	Reference - No formal education								
Formal education	-4.11	(-16.69, 8.48)	0.52	-3.52	(-17.92, 10.88)	0.63	-7.42	(-21.44, 6.61)	0.29
Occupation	Reference - Unemployed								
Employed	-2.40	(-15.12,10.32)	0.71	-2.86	(-16.98, 11.25)	0.69	0.58	(-13.19, 14.35)	0.93
Medicine intake duration, Years (nat. log)	10.20	(5.38, 15.02)	0.000	-	-	-	11.69	(6.51, 16.86)	0.000
Attendance of diabetes counseling	Reference – No attendance								
Yes	5.88	(-6.45, 18.21)	0.35	-	-	-	-1.77	(-14.35, 10.81)	0.78
Diabetes medicine types	Reference – Only OHA								
Insulin or Insulin with OHA	20.34	(3.76, 36.93)	0.02	-	-	-	15.94	(-0.78, 32.66)	0.06

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