A COMPARATIVE STUDY OF QUALITY OF GLYCEMIC CONTROL AND ASSOCIATED FACTORS, IN TYPE II DIABETES MELLITUS, BETWEEN A TERTIARY REFERRAL AND DISTRICT HOSPITAL IN KENYA. 2012

Authors: SM. Mwavua, .EK. Ndungu, . MD. Joshi.

INTRODUCTION

The Kenya national Diabetes strategy 2010-2015 estimates Diabetes prevalence at 3.3% with a projected rise to 4.5%, in 2025. An increase of diabetes in the low income earners has been observed as they seek services from primary health facilities that are sub optimally equipped and not geared to non-communicable diseases care .Conceptions, that diabetics can only get quality medical care from the tertiary health facilities propelled us to compare and contrast quality of care between a tertiary national referral and a district health care facility in Kenya .

OBJECTIVE

To determine and contrast the quality and actors associated with glycemic control in T2DM at the Kenyatta national referral hospital and Thika District hospital and relate this to patient load, attitude and cost.

METHODOLOGY

Study Design: A descriptive cross sectional study

Study Population: T2DM ambulatory patients diagnosed and receiving care at the diabetic outpatient clinics at the selected hospitals.

Case definition: T2DM defined as individuals with a chart diagnosis and on therapy for a period of not less than 3months.

Sampling: Systemic sampling with every other 3rd patient was screened and recruited.

Inclusion Criteria: 18 years and above.

Exclusion criteria: Type 1Diabete Mellitus (WHO criteria), pregnant females patients diagnosed and documented to have psychological or mental disorders.

Procedure: A structured questionnaire was administered by the PI and blood sample drawn for measurement of AIC level.

Outcome variables

- Direct patient cost per visit.
- Clinic appointment interval
- Accessibility, affordability and patient attitude to care and treatment and satisfaction with current treatment.
- Quality of glycemic control as HBA1C.

RESULTS

Between August and October 2012. A total of 210 patients screened, 200 were recruited: 120(60%) KNH and 80(40%) TDH. Ten exclusions were ,2 pregnant, 2 below 18 years age,3 type 1 diabetes and 3 enrolled into care for less than 3months.

Table 1: Socio-demographic characteristics:

Variable	Overall n(%)	KNH n(%)	TDH n (%)	P value
Mean age (SD)	57.8 (12.3)	56.9 (12.8)	59.0 (11.3)	
Gender				
Female	133 (66.5)	77 (64.2)	56 (70.0)	0.247
Male	67 (33.5)	43 (35.8)	24 (30.0)	
Highest level of education				
Primary or less	116 (58.0)	63 (52.5)	53 (66.3)	0.054
Secondary & above	84 (42.0)	57 (47.5)	27 (33.7)	
Religion/Faith				
Christian	198 (99.0)	118 (98.3)	80 (100.0)	0.518
Muslim	2 (1.0)	2 (1.7)	0 (0.0)	
Marital status				
Married	160 (80.0)	98 (81.7)	62 (77.5)	0.734
Single	8 (4.0)	4 (3.3)	4 (5.0)	
Separated/widowed			14 (17.5)	

Table 2: Disease and treatment characteristics:

Variable	Overall N(%)	KNH n (%)	TDH n (%)	P value
Duration of diabetes				
<=10 years	135 (67.5)	71 (59.2)	64 (80.0)	0.002
> 10 years	65 (32.5)	49 (40.8)	16 (20.0)	
Co- morbidities				
Hypertension	114 (57.0)	66 (55.0)	48 (60.0)	0.484
Asthma	7 (3.5)	4 (3.3)	3 (3.8)	1.000
Stroke	4 (2.0)	2 (1.7)	2 (2.5)	1.000
Arthritis	14 (7.0)	5 (4.2)	9 (11.3)	0.054
How Diabetes diagnosed				
Routine hospital check up	13 (6.5)	7 (5.9)	6 (7.5)	0.640
Screened during medical camp	95 (47.5)	57 (48.3)	38 (47.5)	1.000
Symptomatic	90 (45.0)	54 (45.8)	36 (45.0)	1.000
Not stated	2 (1.0)			
Current treatment/advice				
Insulin	80 (40.0)	76 (63.3)	4 (5.0)	<0.001
Special prescribed diet	187 (93.5)	109 (90.8)	78 (97.5)	0.061
Advice/treatment to lose weight	129 (64.5)	91 (75.8)	38 (47.5)	<0.001
Frequency of self monitoring of BS				
Weekly	38 (19.0)	23 (19.2)	15 (18.9)	0.780
Monthly	59 (29.5)	33 (27.5)	26 (32.5)	
Don't test	103 (51.5)	64 (53.3)	39 (48.8)	

Glycemic control

17% study participants had good glycaemic control (KNH 18.3%, 15% in TDH; p=0.539).

Attitude and practices

92.5% reported easy access care (95% TDH, 90.8% KNH); 61% reported the services were affordable (TDH 73.8% and 53.5% in KNH p <0.004) and 99% were satisfied with the care . In 67.5% clinic appointments intervals were 1-3. months however more patients at KNH were seen biannually (46.7% vs. 3.8%, p<0.001) and 85% adhered to appointments.

Regarding routine measurements more then 95% had BP& BS in both facilities; Urinalysis and WT measurements was more frequent at TDH(30% TDH vs. 7.5%; < 0.001;TDH 57.5% KNH 23.3%. p<0.001) respectively.
Overall only 2.5% had HbAIC undertaken with 4.2% at KNH. Drugs availability was higher at KNH (27.5% vs. 7.5%,p<0.001);83.5% of subject utilised public transport to clinic, but a larger proportion of TDH walked (11.3% . 5%, P=O.100).
Regarding care costs incurred, transport cost for KNH was on average, thrice that of TDH (mean cost/clinic/ day/ month kshs 717.4 SD689.6, kshs 227.2 SD 260.6;p<0.001); consultation fee at TDH was a one fifth that of KNH(kshs 554 SD 35.3. kshs 105 SD 50.3; p<0.001);
Cost of OHA was one third lower at TDH(kshs 1000 SD kshs 300 SD, p<0.001, however Insulin cost was similar in the two facilities (KNH kshs 439 SD201.9), TDH kshs 456 SD75.1; p=0.884).
50.5% of all participant reported high adherence to medication (45% in KNH vs. 58.5% in TDH, p=0.057).
High adherence was the only factor associated with good glycemic control in a bivariate analysis (OR 2.8 95% CI 1.2- 6.2; P=0.010) and remained so in a multivariate analysis. Participants with high level of adherence were about thrice more likely to have good glycemic control than those with intermediate/ low level of adherence (adjusted OR 3.2, 95% CI 1.4-7.6).

CONCLUSION

In conclusion we have demonstrated low and similar BS control and self monitoring; however the district facility demonstrated lower patient costs with regards to OHA, transport and consultation fee; higher frequency of clinic appointment, higher accessibility to care and more frequent urinalysis and weight measurements. As anticipated OHA drug availability, excluding insulin, was higher at the tertiary facility. This thus questions the widely held notion that diabetic care is better at tertiary facilities.

RECOMMENDATION

Policy makers need to focus on strategies that in addition address quality of care at peripheral facilities were the majority reside and receive care. This requires decentralization of diabetes care to county ,sub-county and health centres for a majority of subjects with targeted referral to tertiary facilities.

REFERENCES

National Diabetes Control Programme (2010) *Kenya National diabetes strategy (2010-2015) First Edition.*
Patterns, knowledge, practises of HBA1C, testing among Diabetic patients in a Kenyan National Referral hospital (DM Matheka et al 2013)
IDF (2009) making a Difference to global diabetes. Latest diabetes figures paint grim global *Volume 54 issue 3* December 2009