

A SIMPLE MNEMONIC HELPS MULTIPURPOSE DIABETES WORKERS ASSESS CAUSE OF POOR GLYCEMIC CONTROL

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Abstract

The diabetes epidemic has hit us hard, especially in under-served regions where there is a paucity of diabetologists, endocrinologists and total lack of qualified diabetes educators to handle the disease. (1) The high patient: doctor ratio means that adequate diabetes education cannot be carried out in many centres. This also means that many of the potentially correctable or preventable causes of high blood glucose continue to exist in the patient population, because of lack of, or in adequate, or inappropriate counseling. To counter this shortage of qualified diabetes care personnel (1), multipurpose diabetes workers have been trained at an endocrine centre in north India (2,3,4). Armed with basic medical knowledge (and a little bit of common sense), they are able to diagnose the cause of poor control in many diabetic patients. This strategy helps in utilizing the waiting time of the patient, improving the quality, (and quantity) of counseling and reducing the endocrinologist's time in taking a history. The efficiency of a diabetes consultation increases with their active role. The health-related behaviour of the patient, and his immediate family is also modified favorably with this intervention.

BACKGROUND

The diabetes epidemic has hit us hard, especially in under-served regions where there is a paucity of diabetologists, endocrinologists and total lack of qualified diabetes educators to handle the disease. (1)

The high patient: doctor ratio means that adequate diabetes education cannot be carried out in many centres. This also means that many of the potentially correctable or preventable causes of high blood glucose continue to exist in the patient population, because of lack of, or in adequate, or inappropriate counseling.

To counter this shortage of qualified diabetes care personnel (1), multipurpose diabetes workers have been trained at an endocrine centre in north India (2,3,4). Armed with basic medical knowledge (and a little bit of common sense), they are able to diagnose the cause of poor control in many diabetic patients. This strategy helps in utilizing the waiting time of the patient, improving the quality, (and quantity) of counseling and reducing the endocrinologist's time in taking a history.

The efficiency of a diabetes consultation increases with their active role. The health-related behaviour of the patient, and

his immediate family is also modified favorably with this intervention.

MATERIAL & METHODS

The study was designed as a prospective observational study to assess the efficiency and accuracy of trained multipurpose diabetes workers in diagnosing the cause of hyperglycemia or poor control of diabetes in patients attending a north Indian endocrine OPD. It also assessed the common causes of poor glycemic control in these patients.

The workers were trained to use a simple 10 point checklist of possible causes of poor glycemic control (Table 1). Every new patient attending the OPD and every 'booked' patient with poor control of diabetes was referred to the MPDW who administered the checklist. The history thus taken was checked by the endocrinologist.

1500 patients were assessed in this manner over a period of 3 months. This included 893 (59.53%) male and 607(40.46%) female subjects of whom 571 were on insulin. 942 urban and 558 rural-dwellers made up the study population.

RESULTS

The average time taken to administer this checklist was 5-10 minutes. This was usually done in the OPD waiting area, while the patient awaited his or her turn to see the doctor. The information elicited was added to the consultation sheet to save the physician's time.

The common causes of poor glycemic control were analyzed, and the efficiency of MPDWs in finding (and treating) causes of hyperglycemia assessed.(Table 2)

The common causes of poor control were lack of exercise (52.4%), wrong insulin technique (32.05%), dietary indiscretion (28.73%) and infection (20.4%). Using this simple 10 point mnemonic, MPDWs were able to identify the cause of poor control in 93.8% patients, while the endocrinologist was able to pick up another 3.4% etiologic factors.

This demonstrates the efficacy of this simple mnemonic, and the utility of MPDWs in helping diabetic patients identify easily correctable causes of hyperglycemia.

MPDWs were efficient at eliciting history of dietary indiscretion (99.3%), use of indigenous drugs (110.3 %), common infections (125.4%) and drug misuse (91.46%) . They were also able to identify infection as a cause of poor glycemic control in the majority of patients. Similarly they could elicit history of ethanol intake (100.0%), lack of exercise (114.6%) and instrument failure/ misreading (100.0%) in most patients.

MPDWs in fact, diagnosed mental stress and depression more often than the endocrinologist (183.2%). This may have been due to 'over enthusiasm' on part of the MPDW. It may have been that MPDWs were able to elicit a better history by achieving closer provider – patient bonding and empathy.

In most cases, the MPDW contributed to finding the cause of poor control and avoiding unnecessary investigations.

MPDWs however, were less efficient at picking up endocrine causes of inadequate control (62.0%)

Figure 1

Table 1 Checklist: Causes of high blood glucose

	MNEMONIC	DETAILS
D	Diet	Wrong diet pattern/composition /quantity.
D	Depression	Anxiety/ depression/ stress.
D	Drugs	wrong drugs/ dose/ timing non compliance.
I	Infection	Urinary tract, chest, skin infection.
I	Indigenous	use of indigenous drugs.
I	Instrument	instrument failure non conversion of SI units to conventional units.
E	Exercise	lack of / inadequate / inappropriate exercises.
E	Ethanol	Excessive alcohol intake.
E	Endocrine	'medical' / 'endocrine' causes.
T	Technique	Wrong insulin technique.

Figure 2

Table 2 Causes of hyperglycemia

Results	assessed by MPDWs	assessed by endocrinologist	efficacy of MPDW as % of endocrinologist
Dietary indiscretion	428 (28.53%)	431(28.73%)	428/431(99.3%)
Depression/Anxiety	297 (19.8%)	162(10.8%)	297/162(183.2%)
Drugs	268 (17.86%)	293(19.53%)	268/293(91.46%)
Indigenous medicine use	299(19.93%)	271(18.06%)	299/271(110.3%)
Infection	384 (25.6%)	306(20.4%)	384/306(125.4%)
Instrument failure	29(1.93%)	29(19.33%)	29/29(100%)
Exercise(Lack of)	901(60.0%)	786(52.4%)	901/786(114.6%)
Ethanol	117(7.8%)	117(7.8%)	117/117(100%)
Endocrine	62(4.13%)	100(6.66%)	62/100(62%)
Technique failure	183/571(32.05%)	183/571(32.05%)	183/183(100%)
No cause elicited on history	93(6.2%)	42(2.8%)	93/42(221.4%)

DISCUSSION

Such a study to assess the efficacy and utility of MPDWs in diagnosing 'etiology' of high blood glucose has not been reported earlier.

The existing diabetes patient load is so high in most developing countries that endocrinologists and diabetologists are unable to spend adequate time with each patient. To deliver effective medical care, one can utilize diabetes counselors or educators. These paramedical staff, too, is in short supply in many underprivileged countries (1).

The most practical approach then, is to train multi-purpose diabetes workers, who are senior secondary school pass outs with a 2 year diploma in health education. They are able to perform basic as well as some complex aspects of diabetes management, and help in improving the quality and delivery of diabetes care.

This study has demonstrated the utility of a simple 10 point mnemonic, used by MPDWs to elicit the causes of lack of glycemic control.

Using this mnemonic helps save patient and doctor time, utilizes waiting time effectively, creates provider – patient bonding and gives the MPDW a sense of empathy. It helps motivate patients to accept change in medication easily.

Most important of all, it teaches the patient to analyze his dietary and exercise patterns, correct them, and achieve good control. It teaches us to accept other health professionals as equal, and useful, members of the diabetes care team.

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