

Chronic diseases management in the Jamaican setting: HOPE *worldwide* Jamaica's experience

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SUMMARY

The prevalence of hypertension and diabetes in Jamaica is very high. Hypertension is present in 3 out of 10 Jamaicans over the age of 30 years while the prevalence of diabetes mellitus varies between 13% and 18% for Jamaicans over 15 years. HOPE *worldwide* Jamaica is a 7-year-old private voluntary organization that collaborates with the government of Jamaica to provide a mobile medical service to poor rural communities. The records between January 1999 and December 1999 of 1091 chronic disease patients aged >30 years were reviewed. The average recorded age of the patients was 64 years and 82% among them were females. 60% had hypertension, 16% had diabetes and 24% had both diabetes and hypertension. There were 2390 visits for hypertension, with an average of 2 visits per patient. 34% of patients had a blood pressure of $\leq 140/90$ mmHg while 43% had a blood pressure $< 160/95$ mmHg. Compliance was defined as daily consistency in taking prescribed medication. 44% of the patients with hypertension were non-compliant at the time of their visit. Antihypertensive treatment included thiazide diuretics (65%), reserpine (50%), angiotensin converting enzyme (ACE) inhibitors (30%) and α -methyldopa (5%). There were 1122 visits for diabetes, with an average of 2 visits per patient. Among the diabetic patients 23% were controlled to a fasting blood glucose (FBG) level of less than 6.7 mmol/l and 38% to below 8 mmol/l. 30% of the diabetic patients were non-compliant at the time of their visit. The most frequently used oral hypoglycaemic agents were metformin (78%), glyburide (43%) and chlorpropamide (30%). 14% of the diabetic patients were on treatment with insulin: insulin 70/30 (12%) and lente insulin (2%). Electrocardiograms (ECGs) were done in the previous two years on 267 patients (29%), among whom 38% had evidence of left ventricular hypertrophy and 16% of ischaemic heart disease. The level of blood pressure and blood glucose control was inadequate despite the provision of regular monitoring, surveillance and improved access to medication. It is perceived that poor socioeconomic conditions, lack of education, cultural beliefs and some other factors continue to militate against improved compliance and control. HOPE *worldwide* Jamaica is currently implementing programs to improve patient education, especially in compliance, to provide access to more effective medication with convenient once-daily dosage regimens, and to develop support groups among chronic disease patients in order to improve compliance and control.

Introduction

Jamaica and indeed most of the Caribbean Islands have experienced a major shift in health status over the past 25 years. While protein-energy malnutrition and diarrhoeal and other infectious diseases have declined, the nutritional and lifestyle-related diseases such as

diabetes, hypertension, cardiac disease, stroke, cancers and injuries have become major health problems. In 1999, cardiovascular disease was the leading cause of death in government hospitals in Jamaica, accounting for 33% of all deaths (1). Hypertension is present in 3 out of 10 Jamaicans over the age of 30 years (2). The prevalence of diabetes mellitus varies between

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13% and 18% for Jamaicans over 15 years (3), a statistic that was borne out by HOPE *worldwide* in 1997 when 2400 people in 20 rural and inner-city communities in and around Kingston were screened for diabetes and hypertension. The results showed a point prevalence of 13% for diabetes with more than half of those (7%) being unaware that they were suffering from the disease (4). Estimates for the year 2020 are that hypertension could affect as many as 1 in 2 Jamaicans over the age of 30 years and diabetes could affect as many as 1 in 3 over the age of 15 years. These prevalence rates are substantially higher than those reported and predicted for Europe and North America.

HOPE *worldwide* Jamaica's chronic disease service

HOPE *worldwide* Jamaica (HwwJa) is a 7-year-old private voluntary organization that collaborates with the Public Health Departments in 4 of 14 parishes in Jamaica. HwwJa provides a mobile medical and pharmacy service to 14 government clinics. The areas served by the program include rural and inner-city communities that are underserved by the existing public health care system. The rural clinics are located in poor farming communities while the inner-city clinics are in volatile, overcrowded areas of the capital city Kingston. The Ministry of Health provides the clinic locations as well as registration and nursing staff in these communities, while HwwJa provides medical doctors, electrocardiogram (ECG) and pharmacy support services, and nursing staff to do the initial blood pressure and blood glucose screening of patients.

Patients who attend the clinics make a donation of J\$50 (USD 1); however, those who are unable to do so are not excluded from the service. Donations of US \$1 for blood glucose testing and US \$6 for ECG tests help to cover the cost of strips, ECG paper and electrodes. This type of donation scheme has helped to limit abuse of the service, to foster a greater appreciation for the service provided (free service is often thought of as inferior) and to make the program sustainable. The service provides significant financial relief for many of our patients who would otherwise have to pay

between US \$15 and \$20 per visit for private medical consultations (the only other option in many of the communities served).

Medications are accessed through two schemes: chronic disease patients over 65 years of age benefit from subsidized medications through a government initiative called the Jamaica Drugs for the Elderly Programme (JADEP), and for those under 65 years, medications are provided at 30-50% of the cost in private pharmacies. HwwJa has provided care for over 95,000 patients since the inception of the program in 1994 and currently serves over 15,000 people each year.

In rural clinics served by HwwJa, patient visits for chronic diseases account for over 56% of the total number of adults seen, with attendance for hypertension twice as common as that for diabetes. As a result of the large percentage of people attending our clinics with chronic diseases, HwwJa implemented an established regional protocol for managing patients with hypertension and diabetes that was developed by the Commonwealth Caribbean Medical Research Council (CCMRC) in 1998 (5,6).

Hope *worldwide* Jamaica's management protocol

Visits by our mobile medical team to the various communities served are scheduled weekly, fortnightly or once a month, depending on the population of the community and the average number of patients attending the clinic. Patient information such as clinic location, name, date of birth or year of birth, sex and chronic disease diagnosis are recorded in a portable electronic database by the doctor at each patient's initial visit. Subsequent assessments include height, weight, blood pressure, fasting blood glucose (FBG) and a record of compliance with appointments and medication. Compliance with medication is defined as daily consistency in taking prescribed medication. FBG is measured by Advantage Blood Glucose Monitors (Roche) to facilitate easy, up-to-date assessment of the patient's blood sugar control. The medications used to control blood pressure and blood glucose are updated at each visit and the patients' most recent ECG results are recorded where applicable.

The treatment goal for blood pressure control is a level below 140/90 mmHg as recommended by the CCMRC (5). For diabetes, good control is defined as a fasting blood sugar <6.7 mmol/l (120 mg/dl) and acceptable control as FBG <8 mmol/l (140 mg/dl) according to the CCMRC recommendation (6).

Results

In a study of the records of 1091 chronic disease patients above the age of 30 years attending the clinics between January 1999 and December 1999, the following observations were made: 893 (82%) of the records reviewed were from female patients; the average age of patients treated for chronic disease was 64 years; among these, 655 (60%) had hypertension, 174 (16%) had diabetes and 262 (24%) had both; 937 (86%) of the patients kept their scheduled appointment date at the clinics.

Patients treated for hypertension

There were 2390 visits for hypertension, with an average of 2 visits per patient. During 388 (16%) of these visits, the blood pressure (BP) was noted to be controlled to below 140/90 mmHg, while in 431 (18%) the BP was 140/90 mmHg and in 1028 (43%) it was below 160/95 mmHg. 1051 (44%) of the hypertensive patients were non-compliant with medication and diet at the time of their follow-up visits. 28% of the hypertensive patients were on treatment for diabetes. ECGs were done on 267 (29%) of the patients in the previous 2 years. Among these 101 (38%) had evidence of left ventricular hypertrophy and 42 (16%) ischaemic heart disease.

Patients treated for diabetes

There were 1122 visits for diabetes, with an average of 2 visits per patient. 259 (23%) of them were controlled to FBG levels of below 6.7 mmol/l (120 mg/dl), and 431 (38%) to FBG levels below 8 mmol/l (140 mg/dl). Among them 334 (30%) were non-compliant at the time of their visit. 60% of the diabetic patients were also on treatment for hypertension. During only 68 (16%) of their visits was their BP noted to be controlled to below 140/90 mmHg, while in as few as 34 (8%) was the BP

under 130/85 mmHg, which is the level now recommended by the American Diabetes Association (7).

Medications prescribed

Drugs used to treat hypertension included hydrochlorothiazide diuretics (65%), reserpine (50%), angiotensin converting enzyme (ACE) inhibitors such as captopril and enalapril maleate (30%), and α -methyldopa (5%). The most frequently used oral hypoglycaemic agents were metformin (78%), glyburide (glibenclamide) (43%) and chlorpropamide (30%). 14% of the diabetic patients were on treatment with insulin: insulin 70/30 (12%) and lente insulin (2%).

Discussion

Data from the Statistical Institute of Jamaica (STATIN) (8) show that cardiovascular disease accounts for over 36% of the causes of death in Jamaica. Diabetes ranked fourth as the principal cause of death among Jamaicans during the period 1990 to 1994 (9). There is evidence that this is due to the low rates of awareness, treatment and control among patients with hypertension and diabetes (10-12). This low rate of awareness with inadequate treatment and control has also been the experience of HOPE *worldwide* Jamaica (4).

The predominance of females in chronic disease visits (82%) is in keeping with the experience of other public health centres for chronic disease. Our clinics serve poor rural communities. The 1999 data from STATIN show that individuals who live in rural areas, who are in the poorest quintile, and who are males are less likely to seek health care (13). This under-representation of men in clinics in rural communities is of great concern, as hypertension and diabetes are not gender-specific conditions. The 'silent' nature of these diseases has grave implications for the mortality and morbidity of middle-aged and elderly Jamaican men.

The percentage of patients whose blood pressure control was <140/90 mmHg (16%) was low, but also consistent with control rates in another study (10). Contributing factors are

likely to be the high rate of non-compliance with treatment among hypertensive patients and the difficulty they have in making changes in diet and exercise and in complying with multiple long-term medication. Other factors may include the reluctance of physicians to aggressively control BP to <140/90 due to a high number of complaints for dizziness due to hypotension. The low frequency of visits to some clinics and the older age of the patients also encourages a cautious approach on the part of the physician. Of interest is the fact that there was virtually an equal number of patients (18%) who were controlled to a blood pressure of 140/90 mmHg.

The control rates for diabetes were also low despite regular monitoring, consistent attendance to clinics and improved access to medication. Again this may be due to the high rate of non-compliance with treatment among diabetic patients and the difficulty that patients have in making lifestyle changes. Other components that possibly contribute to low levels of control are the reluctance of patients to transfer from oral hypoglycaemics to insulin and the reluctance of physicians to aim for tighter control because of the patients' advanced age, poor educational status and distance from emergency health care services.

In two other studies (10,11) looking at the management of hypertension and diabetes in three settings (a private clinic, a public clinic and a specialty public hospital clinic in Jamaica), it was interesting to note that the percentage of patients controlled to the recommended goals did not vary significantly. Only 16-18% of hypertensive patients were controlled to blood pressures of <140/90 mmHg and 40% of the diabetic patients achieved acceptable FBG levels of <8 mmol/l (140 mg/dl).

The way forward

Given the high prevalence and poor levels of control, hypertension and diabetes mellitus remain formidable issues for public health care in Jamaica and the Caribbean. Poverty, low education and poor access to health care in rural communities intensify the inertia to the lifestyle modifications that are necessary to bring about greater levels of control. We suggest that further improvement in chronic

disease control can be achieved with improved patient education on the importance of compliance, access to more effective medication with convenient once-daily dosage regimens and development of support groups among chronic disease patients. In one initiative by the Diabetes Association of Jamaica, community health aides who are employees of the Ministry of Health were trained to be 'Diabetes Lay Educators'. These individuals are often the first point of contact to the health care system in rural communities. The Diabetes Lay Educators are trained to test blood glucose using the finger stick method and refer suspected cases to clinics. The efficacy of this program is still to be evaluated but it is promising. As an extension of this concept, HwwJa aims as a part of long-term strategy to identify leaders within the communities served who could be trained to organize support groups, exercise clubs and food fairs for people with chronic noncommunicable diseases.

As a result of these observations HOPE *worldwide* Jamaica has initiated:

1. A simple patient information card that helps patients track and assess their own blood pressure and glucose control (Figure 1). The card, called the health passport, also reminds patients not to start or stop medication for hypertension or diabetes unless a doctor has advised them to do so. This is in an effort to reduce the practice of taking medications prescribed for other people and the habit of taking medication for hypertension and diabetes only when they have a headache or feel unwell. The results of this intervention will be evaluated in 2002.
2. A request for donations of large quantities of once-a-day medications used in the treatment of hypertension and diabetes in an effort to reduce the cost of drugs to the patients and improve compliance.
3. Low-impact exercise classes for patients that can improve muscle tone and burn calories while they wait at the clinic. The aim here is to introduce exercise as an acceptable component to managing chronic disease in a culture where exercise is not the norm.

Health Passport

BLOOD PRESSURE

The best method to find your regular pressure is to average 8 measurements taken over several days. If you have diabetes your average blood pressure should be 130/80 or less.

SUGGESTION

Keep this card and show it to your doctor.

CAUTION

Get advice from your doctor before starting or stopping medication for High Blood Pressure or Sugar.

BLOOD PRESSURE RECORD						
	DATE	SYSTOLIC / DIASTOLIC	HEART RATE	WEIGHT	FASTING BLOOD SUGAR	2 HR BLOOD SUGAR
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

BLOOD PRESSURE	SYSTOLIC	NORMAL 130 OR LESS	BORDERLINE 131 TO 139	HIGH 140 OR MORE
	DIASTOLIC	NORMAL 85 OR LESS	BORDERLINE 86 TO 89	HIGH 90 OR MORE
BLOOD SUGAR	FASTING	NORMAL 4.4 to 6.0	IMPAIRED 6.1 to 6.9 mmol	HIGH 7.0 OR MORE
	2 HOUR	NORMAL 6.9 OR LESS	IMPAIRED 7.0 to 11 mmol	HIGH 11.1 OR MORE

Figure 1. Health passport to help patients track and assess their own blood pressure and glucose control.

ACKNOWLEDGEMENTS

HOPE worldwide Jamaica thank the Public Health Departments in the parishes of St Kingston and St Andrew, St Catherine and St Thomas as well as the staff of the clinics. A hearty thanks also to the Canadian Cooperative Office and the Jamaica Social Investment Fund who provided the computers and equipment to enable the analysis.

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