Glycaemic and lipid control in diabetic patients at public and private hospitals in Saudi Arabia

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Abstract
This study compares glycaemic control, blood pressure, lipid status, and treatment patterns between patients attending the diabetic clinics of the King Abdulaziz University Hospital (government) and the Erfan Bageddo Hospital (private), in Saudi Arabia. One hundred consecutive diabetic patients from each hospital were evaluated. Glycaemic control was similar between government and private institutions (HbA1c 7.8±1.8 vs 7.8±1.8, p=NS) despite the government hospital not having glitazone drugs available. Blood pressure control was also similar (there was an equivalent use of angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (ARBs) between the two hospitals). Lipid levels were, however, higher in the government clinic (cholesterol 5.3±1.2 vs 4.4±2.3, p=0.047; low-density lipoprotein (LDL) cholesterol 3.2±0.9 vs 1.9±1.2, p=0.0001; triglycerides 2.1±1.5 vs 1.3±1.9, p=0.002). This was probably due to lower statins usage (29% v 40%). Aspirin was also relatively underused in the government clinic (26% v 50%). In conclusion, the study showed similar glycaemic control between the two diabetic clinics, but indicated insufficient use of statins and aspirins at the government clinic. Further efforts are needed to help Saudi diabetic patients attain accepted treatment target levels.

Patients and methods
This was a cross-sectional study conducted over a 2-month period between January and February 2005. Two centres were selected, one a governmental teaching hospital (King Abdulaziz University Hospital) and the other a large private hospital (the Dr Erfan & Bageddo Hospital). Two hundred patients (100 from each hospital) were randomly selected. Glycaemic control was measured by HbA1c and patients were divided into three groups: excellent control (HbA1c >6.0%); acceptable control (HbA1c 6.0–8.0%); and poor control (>8.0%). Other data collected included duration of diabetes, type of diabetes, complications, hypertension, and serum lipid profiles (see Table 1). Uncontrolled hypertension was considered if BP was more than 140/90 mmHg. We also recorded diabetes treatment: types of antihypertensive medications used, lipid-lowering treatment, and aspirin.

Data analysis was carried out using the Statistical Package for Social Sciences (SPSS). Means ± standard deviations (SD) were calculated for quantitative data, and frequency for categorical variables. Significance was determined using Student’s t-test.

Results
Reaching target hyperlipidaemia, especially low-density lipoprotein (LDL) level, was much better in the Erfan group with levels of 1.88±1.2 v 3.22±0.9 mmol/L with significant p value 0.0001. Table 2 shows the different types of medications used in the two groups. Rosiglitazone, pioglitazone, angiotensin II receptor blockers, statins, and aspirin were commonly prescribed in the Erfan group. However, insulin, ACE inhibitors (mainly captopril) were mainly prescribed in the university group. Sulphonylureas and metformin were equally used in the two groups (see Table 2).

There were no important demographic differences between the two hospital groups, though diastolic BP was significantly lower in those attending the public (KAUH) hospital (see Table 1). Mean HbA1c was identical between the two groups (see Table 2) and the proportion with ‘good’ control (HbA1c <8.0%) was also the same between government and private hospitals (58% vs 54%, p=NS). There were, however, significant differences in serum lipid levels, with the private (EBH) patients having significantly lower total and LD cholesterol, and triglyceride levels (see Table 3).
Discussion

Our results were encouraging, as they showed no significant difference between HbA\textsubscript{1c} levels at the government and private diabetic clinics. Glitazones and acarbose were in use at the EBH (private) but not KAUH (government), but insulin was used more in the latter (see Table 2). However, lipid levels (total and LDL cholesterol, and triglycerides) were significantly lower in those attending the private hospital (see Table 2). This was due to the fact that 40% of patients in the EBH group were treated with statins, but only 29% of patients at KAUH (see Table 2). This was due to the fact that 40% of patients in the EBH group were treated with statins, but only 29% of patients at KAUH (see Table 2). The latter is a teaching government hospital, which provides healthcare to all social classes of patients. Most patients are poor and cannot afford such medications. The majority of patients visiting the EBH had health insurance, which made prescribing statins easier.

Usage of ACE inhibitors and angiotensin 2 receptor blocker drugs (ARBs) was similar between the two hospitals (40% government and 41% private), which probably explains why BP levels and urinary microalbumin levels were similar.

Aspirin use was lower in the government hospital (26% vs 50%). Aspirin is firmly indicated in diabetic patients with established vascular disease, or with hypertension,\textsuperscript{2,4} and many guidelines recommend its more extended use in diabetes.\textsuperscript{3,4} It is, therefore, disappointing that aspirin use was so low in the government hospital, particularly as the drug is cheap and widely available. Underuse of aspirin in Saudi diabetic patients was also reported in the study done by Akbar et al.\textsuperscript{5}

In conclusion, this study was encouraging in that it demonstrated equivalent glycaemic control amongst diabetic patients attending a government clinic, compared with those being seen at a private hospital (despite the absence of modern drugs such as glitazones at the government clinic). BP levels were also equivalent, but lipid levels were poorer amongst the government patients due to underuse of statins. Aspirin also appeared underused in this group. Other studies have demonstrated inadequacies of glycaemic and lipid control amongst diabetic patients from the Middle East.\textsuperscript{6–8} Clear target guidelines exist for such patients,\textsuperscript{9} and efforts must continue to try to achieve these targets.

References