BRIEF COMMUNICATION

How far has translation of research been implemented into clinical practice in India? Are the recommended guidelines adhered to?

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Abstract The study assessed the pattern of diabetes care in India. Data on investigations, drug prescription, review visits and education methods were obtained from different health centers. HbA_{1c} tests and self monitoring practices were inadequate. Basic investigations and drug prescriptions were compromised. Screening for complications was not regularly done. The patients preferred treatment from private to public health sector. There is non adherence of established guidelines for diabetes care. There is a wide gap between translation of research findings and recommendations and their implementation during practice at all levels of health care in India.

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1. Introduction

According to Diabetes Atlas – fourth edition, published by International Diabetes Federation (IDF), India alone will have 50.8 million people with diabetes in 2010. India is a fast growing economy, and has diverse population, with varying levels of literacy, income, traditional and cultural beliefs and varieties of diet pattern. With the current epidemiological transition, the disease pattern shows evidence of shift from communicable to non-communicable diseases, which is more significant in the urban areas [1]. The prevalence of diabetes is high in urbanized society, and the reported prevalence of diabetes in rural India varies from 3.6% to 12.5% [2]. Thus, a profound burden is placed on the healthcare system to manage diabetes mellitus and its complications. The health-

care sector is mostly privatized in India, and most people prefer the private to public health sector [3].

At the onset, it is essential to determine the practices adopted during diabetes care at all levels, both on the part of the government and in the private sector. We hypothesize that the recommended guidelines for diabetes service delivery are not standardized and are not being implemented uniformly at all levels of healthcare in a country that has the highest number of people with diabetes, namely India. Very little research has been conducted in India to study the quality of diabetes care and management across different health settings [4]. Hence, it is necessary to study and determine the pattern of diabetes service delivery in this country, the main aim of this study. This paper determines the healthcare delivery of diabetes in terms of patients' profiles, investigations, patterns of prescription of drugs and economics of diabetes care under three different settings. The paper may serve as an evidence-based document to highlight the need for improved diabetes care and to implement the standard of care at all levels that the patient deserves.

2. Methods

The study used a cross sectional design (house to house survey) with a multistage cluster random sampling technique from the zones which were selected based on the directions – north, south, east and west, to obtain a representative sample. With the prevalence of diabetes as 19%, 80% power, .05 level of significance and a precision of six, the sample size required was 168. Patients with diabetes who had taken treatment for diabetes from any health center, and those who had maintained hospital records, were considered for further data collection. Data were collected using a questionnaire developed by epidemiologists, which was pilot tested, with suitable modifications being incorporated. The questionnaire was administered by trained research officers in the field of diabetes epidemiology, with each interview lasting for approximately 45 min. The questionnaire incorporated, section by section, details regarding sociodemographic characteristics, place of diabetes care, the investigation details, types of drugs prescribed and taken, any history of diabetes complications, counseling methods and cost patterns. The entire data were then categorized into three groups, as described above, and the statistics were computed and compared for the parameters under study, using SPSS version 10.0. Percentages have been reported for the categorical variables, and student t-test, z-test and median tests were conducted to obtain statistical differences wherever applicable.

3. Results

The study population comprised 180 patients, who responded well to the interview. The distribution of patients attending the health centers was as follows; Group I: Diabetes Specialty Centres – 83 patients, Group II: Private Clinics – 82 patients, and Group III: those visiting Government Hospitals – 15 patients. The patient characteristics and the socio-demographic profile are described in Table 1, for the three groups with the denominator taken as per the size of the listed variable. The age and gender distribution of the study sample were similar in Group I and II. Most patients seeking treatment from the government centers belonged to the first income tertile, while there were none from the highest income group visiting the government centers. Increase in income was directly proportional to the increase in the number of patients visiting diabetes specialty centers, while it was inversely proportional to private clinics. Those patients who had attained higher education and those in white collar jobs preferred private treatment.

As the chronic nature of the disease increased, patients opted to seek treatment from specialized centers. The distribution of patients with less than 5 years duration of diabetes was as follows; Group I – 31%, Group II – 56.3% and Group III – 12.7%. An increase in the duration of diabetes showed a significant increase and shift toward specialty centers: for instance, for greater than 10 years duration, the figures were 60.3%, 34.9%, and 4.8% for Group I, II, and III, respectively.

The HbA_1c test was not prescribed at the government centers, while only 31.7% and 6.1% of Group I and II had it checked. Among them, Group I patients seem to have a better control of diabetes, compared to Group II ($p = 0.031$), as their mean HbA1c was comparatively lower. Other investigations, such as retinal examinations, foot examinations and cardiac checkups were conducted only among 28% and 21.7% of Group I and II patients, while the investigations were never prescribed during routine visits in government centres. The estimation of blood through fasting and post prandial method was the only test prescribed at government centres. The practice of self monitoring of glucose (SMBG) was observed among 26.8% and 10.8% of the Group I and II patients, respectively. Professional advice and counseling regarding healthy lifestyle-like diet modification and physical activity methods was given only at specialized diabetes centers. Group II and III patients had never been counseled, or advised on lifestyle modification during routine visits (Table 2).

Around 59% of the study sample had developed at least one complication related to diabetes. Table 3 shows the distribution of patients according to the complication. Diabetes patients who develop complications preferred treatment at a diabetes specialty center, but the differences across the groups did not reach statistically significance levels.

The pattern of drug prescription varied across the three groups described in Table 4. Sulphonylureas and/or biguanides were the basic drug in all prescriptions across the overall sample. In addition to this, compounds like thiazolidinediones and α-glucosidase inhibitors and DPP4 inhibitors were prescribed in Group I and II patients. Around 16% of the patients used insulin, of whom 13.5% were from Group I and 2.7% from Group II. Surprisingly none of the patients attending government centers were on insulin. Similarly cardio protective medication, such as statins and anticoagulants were commonly used at specialized centers (17.6%) and its use declined to 4.1%, at private clinics and to 1% at government centers.

The socioeconomics related to diabetes care in the community is illustrated in Table 5 in terms of direct, indirect and intangible costs. The per annum direct cost, which includes consultation fees, investigations and medication cost, was significantly higher for Group I – 16,200 INR than Group II – 9450 INR. Indirect cost which calculated the loss in income was also higher for Group I, but never reached statistical significance. The bidding method to determine intangible costs was based on how much money the patients were willing to spend every month to prevent future problems, was again significantly higher in Group I.