AN OBSERVATIONAL STUDY ON COMPLICATIONS OF CHRONIC DIABETES ENCOUNTERED IN A PULMONOLOGIST CLINIC

V. Vinod Kumar Viswanathan[1], Junior Sundresh[2], Amelia Doreen Nancy[3]

[1]Student (MBA Hospital Management), Annamalai University, DDE and Consultant Pulmonologist, Department of Pulmonary Medicine, Aswene Soundra Hospital, Chennai.
[2]Associate Professor, Department of Surgery, Rajah Muthiah Medical College and Hospital, Annamalai University.
[3]Associate Pulmonologist, Department of Pulmonary Medicine, Aswene Soundra Hospital, Chennai.

ABSTRACT

BACKGROUND

With the ever increasing prevalence of diabetes, complications of diabetes are encountered across all specialities. Hence, it is imperative that all specialists should have a working knowledge of diabetes mellitus. This study was done to understand the prevalence and complications of diabetes among patients attending a pulmonologist OPD. Knowledge of diabetes and its complications will help pulmonary medicine specialists to identify and manage the complications of diabetes better.

MATERIALS AND METHODS

All patients attending a pulmonologist's clinic for a period of one month were enquired regarding their diabetes status and patients with known history of diabetes were questioned using a standard questionnaire and their available records examined regarding their complications pertaining to diabetes and the results analysed.

RESULTS

In this study, 18.7% of patients attending pulmonologist clinic had diabetes mellitus and 13.5% of patients had diabetes of more than 10 years duration. Most of the patients were in the age group of 40 to 60 years and were predominantly male. Among the diabetic patients, 71.9% had complications due to diabetes. Infections were the most commonly associated complication followed by pulmonary and cardiovascular complications. Many cases of pulmonary tuberculosis were observed among these patients. Other respiratory infections observed included pneumonias and flu. Cardiovascular complications like systemic hypertension, coronary artery disease and dyslipidaemia were observed.

CONCLUSION

With the rising prevalence of diabetes mellitus, such cases are frequently observed across all medical specialities. Hence, it is vital that all specialists should be trained in a management of diabetes, which is a frequent comorbidity observed by all specialists. Knowledge of diabetes, identifying diabetes early and management of complications will go a long way in reducing the morbidity and mortality due to diabetes and also help specialists to manage their case better.

KEYWORDS

Diabetes, Pulmonologist, Complications, Cardiovascular, Infections, Respiratory Infections.

HOW TO CITE THIS ARTICLE: Viswanathan VK, Sundresh J, Nancy AD. An observational study on complications of chronic diabetes encountered in a pulmonologist clinic. J. Evid. Based Med. Healthc. 2017; 4(60), 3598-3601. DOI: 10.18410/jebmh/2017/717

BACKGROUND

Diabetes is gaining epidemic proportions worldwide. In 2008, an estimated 347 million people in the world had diabetes and the prevalence is growing particularly in low- and middle-income countries. India had 69.2 million people living with diabetes (8.7%) as per the 2015 data.[1] India is considered the diabetes capital of the world. Onset of diabetes early in life is a reason for increasing complications in diabetes especially in those of long duration. Encountering complications of diabetes in clinical practice is common, but nationwide statistics regarding it is lacking. Probably, the varied geography, ethnicity, lifestyles and many other factors may contribute to the lack in a single data for the country.[1] Speciality clinics also witness a major proportion of diabetes. Screening these patients for systemic complications will help in decreasing the mortality and morbidity associated with diabetes mellitus.

With such increasing prevalence, it is vital that all specialists are trained in identifying and managing diabetes and its complications early thereby reducing the morbidity and mortality due to the disease.

Aims and Objectives

The aim of this study was to analyse and study the prevalence of complications of diabetes mellitus in patients attending a pulmonology speciality clinic, which will help in

Financial or Other, Competing Interest: None.
Submission 10-07-2017, Peer Review 15-07-2017,
Acceptance 23-07-2017, Published 25-07-2017.
Corresponding Author:
Dr. V. Vinod Kumar Viswanathan,
No. 63, Ashram Avenue, Phase III,
Mugalivakkam, Chennai-600116.
E-mail: drvinodkumar76@gmail.com,
DOI: 10.18410/jebmh/2017/717

providing insight to the necessity for glycaemic control and early screening for complications and the need for specialists to have a working knowledge of diabetes mellitus.

MATERIALS AND METHODS

All patients attending a pulmonologist's clinic for a period of one month were enquired regarding their diabetes status and patients with known history of diabetes were questioned using a standard questionnaire and their available records examined regarding their complications pertaining to diabetes and the results were analysed.

Since there was no standard reference regarding "chronic diabetes", for the sake of this study, chronic diabetes was arbitrarily defined as diabetes of 10 or more years. In this study, cardiovascular, renal complications and infections. which are known complications of diabetes were included. This study was an observational study to assess the prevalence of diabetic complications in patients attending a pulmonologist clinic and the complications, which had already been diagnosed and recorded in patient's records were included for the study.

RESULTS

During a period of one month in December 2016, 474 patients were seen as outpatients in a pulmonary speciality clinic. Out of these, 89 patients were identified as diabetes (18.7%) and 64 (13.5%) had diabetes of more than 10 years duration.

Number of patients seen in this period	474
Number of patients with DM seen in this period	89 (18.7%)
Number of patients with DM of more than 10 years	64 (13.5%)
Table 1. Patient's Screened and Diabetics Identified	

This table shows that in a pulmonologist clinic, 18.7% of patients have diabetes mellitus.

Age	Number	Percentage
Age <40	5	5.6%
Age 40 to 60	47	52.8%
Age >60	37	41.6%
Table 2. The Age of Patients with Diabetes Studied were in the Age Range 35 to 87 Years		

Most of the patients were in the age group >40 years.

Sex	Number	Percentage
Male	57	64%
Female	32	36%
Table 3. The Sex Distribution was as Follows		

Most of the patients were males.

Out of the 89 patients with DM.

Number of patients with complications related to DM	64 (71.9%)
Number of patients with no complications identified at present	25 (28.1%)
Table 4. Number of Diabetes Patients Identified with Complications	

Diabetic Treatment	Diabetic Patients with Complications	Diabetic Patients without Complications
On insulin	11	3
On OHA	44	21
On both insulin and OHA	9	1
Table 5. Diabetic Treatment among the Patient with and without Complications		

This table shows that most of the diabetic patients attending the clinic were on OHA, but numbers are not sufficient for a statistical analysis.

Complication	Frequency	Percentage
Cardiovascular	21	32.81%
pulmonary	22	34.37%
Renal	7	10.94%
CNS	1	1.56%
Neuromuscular	8	12.5%
Infections	28	43.75%
Others	6	9.38%
Table 6. Complications Identified among the Diabetic Patients		

The cardiovascular complications observed included systemic hypertension, coronary artery disease and dyslipidaemia. One case of acute myocardial infarction was seen.

Pulmonary complications were mostly tuberculosis, bronchitis, recurrent respiratory infections, flu and an isolated case of interstitial lung disease.

Renal complication of diabetic chronic kidney disease was noted.

There was one case of CVA included under the heading of CNS complications and eight cases of peripheral neuropathy labelled under the heading of neuromuscular complications.

Among others is reported, the cases with morbid obesity with obstructive sleep apnoea, a case of documented diabetic retinopathy and a case of diabetic bullae.

PTB	17
Pneumonias	8
Flu	3
UTI	2
Ileocaecal TB	1
Mucormycosis	1
Breast abscess	1
Table 7. Infections Noted among the Diabetics Attending a Pulmonologist Clinic	

This table shows that among the diabetics attending a pulmonologist OP, the commonest infection noted is pulmonary tuberculosis.

DISCUSSION

In this study, 18.7% of patients attending the pulmonary medicine outpatient department were identified as having diabetes mellitus and 13.5% of patients had longstanding

diabetes of more than 10 years duration. Though, the data presented is from a pulmonary medicine outpatient department, similar findings are encountered across all specialities reflecting a need for greater awareness and need for early screening and monitoring of patients for diabetes.

Most of the patients were more than 40 years, which reiterates the need for screening for diabetes in patients above that age. Early identification and better glycaemic control may go a long way in reducing the associated morbidity and mortality due to this illness.

This study being an observational study only data already available from records of the patient were taken for study purpose. The main aim of this study was to assess the complications of diabetes that are encountered in a pulmonologist clinic, so as to enable a comprehensive management strategy for managing such patients. The main drawback of this approach was that active search for complications of diabetes was not done.

In this study, 71.9% of patients had complications that could be attributed to diabetes mellitus. This again emphasises on the need for an early diagnosis, good glycaemic control and periodic monitoring for the complications due to diabetes mellitus. Even in a pulmonology clinic, a comprehensive checkup for the complications should be offered such as periodic ECGs, lipid profile, ophthalmic reference and urine microalbuminuria and serum creatinine evaluation.

Diabetic complications were observed among patients both on insulin and oral hypoglycaemic agents stressing the need for individualising treatment and the need for monitoring patients will all types of diabetes.

Infections were the most common complication observed in our study followed by cardiovascular, neuromuscular and renal complications. A wide array of infections such as tuberculosis, pneumonias, UTI, mucormycosis and breast abscess were encountered in the short study period. Being a pulmonary specialist clinic, infections were predominantly pulmonary. In a similar study conducted in the rural setting of Goa,[2] the common complications among the diabetics were neuropathy (60%), CHD (32.3%) and cataract (20%) while the other significant complications included retinopathy (15.4%), PVD (11.5%) and CVA (6.9%).

In South India, a similar high prevalence of CHD (30.3%) among the diabetics was revealed by Ramachandran et al.[3] Another study Ramachandran et al[4] reported a prevalence of 0.9% and 61.9% for stroke and neuropathy respectively among the diabetes subjects while the prevalence of PVD was 4.1%. Around 17.2% of diabetics had cataract as a complication in a study (Mohan V et al) carried out in Southern India.[5] Rema M et al[6] reported a retinopathy prevalence of 34.1% among diabetics in South India. A rising trend in the prevalence of associated diabetic complications with advancing years of DM was found in our study.

In 2012, Niazi and Kalra[7] documented the importance of glycaemic control in tuberculosis patients and how the insulin requirements of the patient varies with different phases of the disease.[7] Hence, a thorough working knowledge of diabetes is necessary for a pulmonologist to understand disease progression to identify treatment failures at an early stage and to prevent relapse. This applies to all infections secondary to diabetic immunosuppression.

In this study period, there was a case of invasive pulmonary mucormycosis who succumbed to his illness due to delay in the diagnosis. Early suspicion and identification of infections such mucormycosis is much needed.

We searched PubMed for citations on pulmonary complications of diabetes. The search results showed many papers on diabetes and association with tuberculosis, other infections and lung function abnormalities in diabetes. This again reiterates the fact that pulmonary complications are frequently encountered in diabetes and stresses on the need for pulmonologist to learn more on this disease.

There can be no denying the fact that we are in the midst of an outbreak of diabetes. In this study, about 13.5% of patients screened had chronic diabetes and almost all of them had some complications that could be attributed to this disease. Pulmonary complications are often neglected and need to be studied further and also awareness created regarding the same.

The individual's susceptibility to complications appears to be varied and unpredictable. There are people with longstanding disease with no complications and some with relatively rapid progression. What are these factors determining, this needs to be studied further.

In the battle against the epidemic, each specialist has a role. But, probably the onus lies with the general practitioners and the family physicians who have to take the lead and identify the disease early, monitor and prevent complications from arising and also to keep the complications from progressing further. Periodic specialist referral is needed.

There are knowledge gaps that need to be filled for better management of diabetes mellitus across all specialities. More stress on diabetes as a disease and its impact on the life and livelihood of the patients is needed in the curriculum of healthcare professionals at both undergraduate and postgraduate levels. Filling the knowledge gap will help bring down the morbidity and mortality due to diabetes, which is a silent epidemic of this century.

CONCLUSION

Every specialist should be trained to have a working knowledge of diabetes, since it is a common comorbidity encountered across all the specialities. Early identification and control of diabetes will go a long way in preventing morbidity, complications and mortality due to diabetes.

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