Proceeding S.Z.P.G.M.I vol: 10(1-2) 1996, pp. 22-21.

Diabetes Mellitus and Rheumatic Disorders

Farrukh Iqbal
Department of Medicine, Shaikh Zayed Postgraduate Medical Institute, Lahore.

SUMMARY

At Shaikh Zayed Hospital, in the medical outdoor department 25 diabetic patients including both sexes and all ages (16-60 years) were referred for rheumatic problems from orthopaedics and general surgical out patients. These conditions included frozen shoulders, tenosynovitis, entrapment neuropathies, Dupuytren's contractures etc: These conditions cause few symptoms and are ignored. Increased awareness and effective treatment results in minimizing the disability of the diabetic patients.

INTRODUCTION

A variety of rheumatic conditions are associated with diabetes mellitus. These conditions usually cause few symptoms and thus ignored especially when other complications of diabetes e.g neuropathy, retinopathy, nephropathy and dermopathy are present. Examination revealed a number of findings though they did not complain much e.g Dupuytren's contracture, cheiroarthropathy, neuropathy and osteoporosis. Thus a closer look at the muskulo skeletal system is necessary. Several conditions causing pain and disability respond to simple measures resulting in decreased morbidity. Increased awareness about the pathophysiology in rheumatic diseases especially glycosylation of collagen may highlight understanding of vascular disease.

This short study looks at various rheumatic conditions, which can affect the skin, connective tissue, tendons, joints etc in diabetic patients.

PATIENTS AND METHODS

Twenty five patients were included. All had diabetes. Fifteen patients (60%) were controlled with oral hypoglycaemic agents and 10 (40%) were on insulin. Out of twenty five patients 18 (72%) were males and 7 (18%) were females. Ages of the patients were from 16 year to 60 years (mean ± 38). The 4 common rheumatic conditions were Dupuytren's contracture 4(16%) tenosynovites 3 (12%) carpal tunnel syndrome 3 (12%) osteoporosis 3 (12%). Others were frozen shoulder, neuropathic joints and osteoarthritis (Table 1).

Table 1: Rheumatic conditions and structures involved.

Condition	*No. Of Cases*	*Structure*
Dupuytren's contractures	4	Skin
Cheiro arthropathy	1	
Tenosynovitis	3	Tendon
Frozen shoulder	2	Joints
Crystal arthropathy	1	
Inflammatory arthritis	2	
Osteoarthritis	2	
Neuropathic joints	2	
Carpal tunnel syndrome	3	Nerves
Algodystrophy	0	
Osteo porosis	3	Bone
New bone formation	2	

DISCUSSION

It was observed that some rheumatic disorders were more common in females than males e.g carpal tunnel syndrome, frozen shoulder and tenosynovitis. On the whole females seem more prone to rheumatic problems.

An interesting feature was that those patients complained of symptoms which were not regarded as significant. Inflammatory arthritis, entrapment neuropathies and osteoporosis improved with good control of diabetes. However the common presentations are shown in Table 2.

Table 2: Rheumatic disorders and mode of presentation.

Condition	*Presentation*
Dupuytren's contracture	- Nodules in the palms.
Cheiroarthropathy	- Stiffness in the fingers.
Tenosynovitis	- Painful movements of digits.
Frozen shoulder	- Difficulty to comb hair.
Crystal arthropathy	- Pain in the knee elbow in 1st metatarso phalangeal joint.
Inflammatory arthritis	- Fever & pain in the affected joint.
Osteoarthritis	- Pain and difficulty in climbing stairs.
Neuropathic joints	- No pain but deformity of joint.
Carpal tunnel syndrome	- Tingling sensation in the thumb, index ring and middle finger and also flexor surfaces.
Algodystrophy	- Pain and swelling of joints.
Osteoporosis	- Backache.
Hyperostosis	- Pain and stiffness in mid thoracic spine.

Dupuytren's contracture is characterized by the presence of Knuckle pads palmar nodules, thickened palmar fascia and tethered skin. Flexion contracture of the affected finger may occur. It is painless. The prevalence in diabetic patient is between 2-60%[1]. It is often seen in epilepsy, alcoholism and in patients using vibrating tools.

Flexor tenosynovitis occurs in rheumatoid arthritis and other inflammatory joint conditions. A definite association between flexor tenosynovitis and diabetes has been shown[2]. There is pain and limitation of movement of the affected digit. There is some evidence of a relationship between diabetes mellitus and enthesopathy[3] which is a complication of NIDDM.

Entrapment or compression neuropathy e.g carpal tunnel syndrome (median nerve), Phalen studied 379 patients and found diabetes in 16.6% of the patients[4]. It is suggested that microangiopathy caused by diabetes results in ischaemia of median nerve and renders it more susceptible to minor compression. It might be due to deficiency in vitamin B6 which occurs occasionally in Diabetes.

Cheiroarthropathy also called digital sclerosis or pseudoscleroderma is characterized by waxy thickening and tightness of the skin and underlying connective tissue with flexion contractures of the small joints of hands. There is no true arthropathy and no features of scleroderma. It has been reported to occur in children and adults with IDDM and NIDDM[5]. There is no relation of this disorder to age, sex, duration of diabetes and insulin dose or quality of metabolic control but thickness of skin is reduced if treated with insulin pump[6].

Frozen shoulder is associated with other conditions like myocardial infarction. (Dressler's syndrome), cerebrovascular disease (Hand-shoulder syndrome), thyroid disease and trauma. Frozen shoulder is five times more common in diabetics than non-diabetic patients[7] and tends to occur earlier, involve both shoulders and results in permanent limitation of shoulder movement. There are histological differences between a frozen shoulder of diabetic patient and non-diabetic patient. In the former there is fibrosis and in the later inflammatory cells infiltrate[8].

Diabetes is the commonest cause of charcot's neuropathy in the UK. There is a combination of small vessel disease and neuropathy resulting in loss of pain and proprioception. It occurs in patients between the ages of 50-60 years of either sex and those who have diabetes mellitus over 10 years.

Crystal arthropathy i.e gout and pseudogout show no association with diabetes unless patients is hypertensive and has other conditions. Calcium deposition in peri-articular structures around the shoulder does occur more commonly in diabetic than non-diabetic patients[9].

Osteoarthritis and diabetes mellitus are indirectly associated and related to age and obesity. Osteoarthritis of hands does occur in diabetes mellitus. In one study the prevalence of diabetes in algoarthropathy (Sudek's atrophy or reflex sympathetic dystrophy) was 7.4%.

Osteoporosis and hyperostosis both occur in diabetes. In osteoporosis rate of bone loss is maximal before or at diagnosis and may be inversely related to insulin levels[10]. The prevalence of vertebral hyperostosis in diabetic patients is 13% increased to 21% in the 60-69 years[11].

CONCLUSION

It is, therefore, quite clear that incidence of few rheumatic disorders is more in diabetes mellitus than general population and through proper history and clinical examination and of course a working knowledge of these disorders help in early diagnosis and management of these conditions resulting in decreased morbidity of these patients.

ACKNOWLEDGEMENT

I am grateful to Prof. Shahid Omar for his valuable comments and Miss. Sajida Bano for typing the manuscript.

REFERENCES

1. Noble J, Heathcote JG, Cohen H. Diabetes mellitus in the aetiology of Dupuytren's disease J Bone Joint Surg 1984; 66B: 322-5.
2. Leden I, Schersten B, Svensson B, et al. Locomotor system disorders in diabetes mellitus Scand J Rheum 1983; 12: 260-2.
3. Tambalo C, Poli M, Mantavasi G, Enthesopathies and diabetes mellitus. Clin. Exp Rheumatol. 1995; 13: 161-6.
4. Phalen GS. Reflections on 21 year experience with carpal tunnel syndrome. JAMA 1970; 212: 1365-67.
5. Fitzcharles MA, Duby S, Waddell RW et al.. Limitation of joint mobility in adult non insulin dependent diabetic patients. Ann Rheum Dis 1984; 433: 251-4.
6. Lieberman LS, Rosen bloom AL, Ruley WJ. Reduced skin thickness with pump administration of insulin. N Eng J Med 1980; 303: 940-41.
7. Bridgman JF. Periarthritis of the shoulder and diabetes mellitus. Ann Rheum Dis 1972; 31: 69-71.
8. Kay NRM, Slater DN. Fibromatoses and diabetes mellitus Lancet, 1981; 303.
9. Kaklamanis P, Rigas A, Giannatos J et al.: Calcification of the shoulder and diabetes mellitus. N Eng J Med 1975; 293: 1266-7.
10. Mc Nair P, Christiansen C, et al. Development of bone mineral loss in insulin treated diabetes. Eur J Clin Invest 1981; 11: 55-9.
11. Julkenen H, Heinonen OP, Pyorala K. Hyperostosis of the spine in an adult population - its relationship to hyperglycaemia and obesity. Ann Rheum Dis 1971; 30: 605-12.

The Author:

Farrukh Iqbal,
Assistant Professor
Department of Medicine,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.

Address for correspondence:

Farrukh Iqbal,
Assistant Professor
Department of Medicine,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.