DIABETIC STATUS IN PSORIASIS

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Summary

Sixty five uncomplicated cases of psoriasis were subjected to standard and cortisone primed glucose tolerance test to study the association of the disease with diabetes mellitus. The peak incidence of psoriasis was in early adulthood (26.1%). The cutaneous lesions were mainly seen as thick plaques with micaceous, loosely adherent scales covering them (53.9%).

Impaired glucose tolerance test was detected in 18(27.7%) cases, of whom 1.6% had manifest 12.3% latent and 13.8% latent chemical diabetes. Eleven out of 18 cases with impaired glucose tolerance had extensive cutaneous lesions (Type B). Ten out of 18 cases had glucose tolerance curve with sharp rise followed first by lag phase and then decline phase with blood sugar remaining above fasting level. The incidence of diabetes in psoriasis was more in persons above 40 years of age (35.7%).

Many dermatological conditions may be correlated with the diabetic syndrome. Except for diabetic micro-angiopathy there is no specific diabetic skin lesion. Certain skin disorders give clue towards an underlying derangement of carbohydrate metabolism and thus serve as a guide post for early detection of diabetes. Whether there is existence of any relationship between psoriasis and diabetes, is still an unsettled issue. The incidence of diabetes mellitus in psoriasis has been variously reported in literature as 2.4% to 5.7% [1-4].

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The present study has been done to find out whether any relationship exists between diabetes mellitus and psoriasis.

Material and Methods

Sixty five cases of uncomplicated psoriasis were the subjects of the present study. The diagnosis was made on the clinical features and was confirmed by skin biopsy. Patients who were known to be diabetic or on systemic/topical steroids, diuretics or oral contraceptives or with evidence of liver disease were not included in this study. Eighty normal healthy subjects of comparable age and sex served as controls[5].

All 65 patients were subjected to standard glucose tolerance test with 100 gms of glucose orally[6]. Those with normal glucose tolerance were subjected to cortisone (prednisolone) primed glucose tolerance test by using 40 mg of prednisolone in four divided doses a day before the test[7]. Blood sugar

estimations were done by Somogy-Nelson method[8]. Cases were labelled as normal or diabetic on the basis of tests using W. H. O. criteria[9].

Observations

Age of the patients ranged from 6 years 1 month to 64 years with a mean of 29.5 years (Table 1). Psoriasis was uncommon in the new borns and infants but showed increasing frequency as infancy progressed to late childhood (10.7%). Peak incidence was in third decade (26.1%). Male to female ratio was 1.6 : 1. Total duration of the disease varied from 4 weeks to 8½ years with mean duration of 2 years 6 months. Duration of presenting episode varied from 7 days to 2 years with a mean duration of six and a half months.

TABLE 1
Showing age and sex incidence.

Age group in years	Male	Female	Total	incidence
Upto 10 years	5	2	7	10.7%
11-20 years	8	5	13	20.0%
21-30 years	10	7	17	26.1%
31-40 years	5	7	12	18.4%
41-50 years	5	4	9	13.8%
51-60 years	4	1	5	7.7%
Above 60 years	2	-	2	3.3%
Total	39	26	65	100.0%

Sex ratio = male : femal : 1.6 : 1

Patients were categorized into three groups on the basis of the clinical features[10]. Majority of the patients had cutaneous lesions in the form of thick micaceous, loosely adherent scales covering the lesions (Type B = 53.9%, Table 2).

In the control group of 80, one (1.2%) had impaired glucose tolerance test (latent diabetes) and none had impaired cortisone primed glucose tolerance test (Table 3).

Among the patients with psoriasis, one (1.6%) had manifest diabetes,

TABLE 2
Clinical varieties of cutaneous lesions.
Classification Scott & Farber Ref. 10

Type of lesion	Male	Female	Total	incidence
A. Elevated lesions	12	8	20	30.7%
B. Thick, micaceous loosely adherent scales covering lesions	20	15	35	53.9%
C. Erythematous lesions of skin	8	2	10	15.4%

TABLE 3
Diabetic status in normal healthy subjects and psoriasis patients.

	Control (80 cases)		Psoriasis (65 cases)	
Diabetic status	No. of cases	Incidence	No. of cases	Incidence
Manifest diabetes	—	—	1	1.6%
Latent diabetes	1	1.2%	8	12.3%
Latent chemical diabetes	—	—	9	13.8%
Non diabetics	79	98.8%	47	72.3%

eight (12.3%) abnormal glucose tolerance test (latent diabetes) and nine (13.8%) abnormal cortisone primed glucose tolerance test (latent chemical diabetes), making a total of 18 (27.7%) abnormal curves. Of these 18 patients, ten (55.5%) showed typical diabetic glucose tolerance curve with sharp rise and stationary phase followed by decline remaining above fasting level of blood sugar (Table 4, Fig. 1).

TABLE 4
Types of diabetic curves in psoriasis (18 cases).

Types of the curves	No. of cases	Incidence
I. Curve of steady increasing blood sugar levels.	5	27.7%
II. Curve with sharp rise, stationary phase followed by decline remaining above fasting blood sugar level.	10	55.5%
III. Sharp rise followed by sharp fall often below fasting blood sugar level.	3	16 8%

Further analysis on age, sex and cutaneous lesions was done. As age advanced the incidence of diabetes increased (35.7% in 5th and 6th decade) and this was more so in males (30%, Table 5). Abnormal glucose tolerance test was seen maximally in patients having cutaneous lesions of Type B i. e. with thick micaceous, loosely adherent scales covering the lesions — a type representing greatly accelerated proliferation of cells with incomplete keratinization (Table 6).

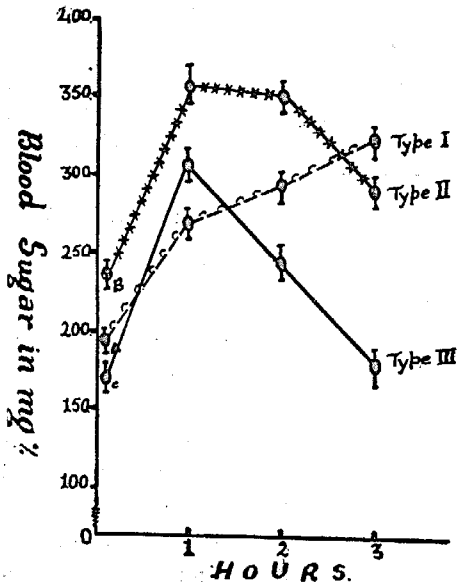

Fig. 1; Patterns of abnormal glucose tolerance curves in Psoriasis.

TABLE 5

Diabetic status in relation to age and sex

Age group in years	No. of cases	Cases with diabetic curve	Incidence
Upto 20 years	20	4	20.0%
21—40 years	29	9	31.0%
41—60 years	14	5	35.7%
Total	63	18	27.6%
Male	40	12	30.0%
Female	25	6	24.0%

TABLE 6

Diabetic status in relation to type of cutaneous lesions in psoriasis.

Types of skin lesions	No. of cases	Diabetic status				Total Incidence
		Manifest	Latent	Latent	Chemical	
Type A.	20	—	2	3	5	25.0%
Type B.	35	1	5	5	11	31.4%
Type C.		—	1	1	2	20.0%
Total	65	1	8	9	18	27.6%

Discussion

The occurrence of hyperglycemia during the acute phase of psoriasis has been recognised for a long time. Obesity, old age, concomitant therapy with corticosteroids etc. are known diabetogenic factors but their exact role on impaired glucose tolerance following acute attack of the disease remains uncertain. We have observed that amongst the elderly (above 40 years of age) 35.5% had abnormal glucose tolerance. The incidence of diabetes in psoriasis is reported from 4.4 to 25%[10-12]. Richardt and Larsus[13] could detect glycosuria in 28% of non-diabetic psoriatic patients by administering 60mg of prednisolone in one day, while Burns and Whitehouse[14] detected abnormal glucose tolerance curve in 8.7% and abnormal cortisone primed glucose tolerance test in 38% of patients. This impaired cortisone primed glucose tolerance test reflected an unidentified factor related to psoriasis rather than to genetic diabetes. In the present series one patient had manifest diabetes while abnormal glucose tolerance test was seen in 12.3% and impaired cortisone primed glucose tolerance test in 13.8%, thus giving an incidence of 27.7% with impaired glucose tolerance.

53.9% of patients with thick micaceous, loosely adherent scales – a result of greatly accelerated epidermal proliferation and impaired keratinization showed impaired glucose tolerance. Whether any relationship exists between

the severity of the disease and the underlying metabolic disorder remains to be confirmed by further studies. It is said that stress induces adrenal hyperactivity with increased catecholamines secretion. Raised serum cortisol levels have been generally considered to be responsible for this impairment in the carbohydrate metabolism. In psoriasis there is generally associated physical and psychological stress and this will result in stimulation of hypothalmo-hypophyseal-adrenocortical axis as well as sympathetic stimulation which increases catecholamines level and beta-receptor stimulation leading to lipid mobilization, glucose intolerance and suppression of insulin secretion[15-16]. Conn and Fajans[17] pointed out further loss of the tolerance in those patients who showed abnormal cortisone primed glucose tolerance curves. This fact will serve as a warning while managing psoriatic patients who exhibit an abnormal stress tolerance curves.

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