

## Analysis of Lithogenous Factors in Lichen Planus

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**A search for possible lithogenous factors was undertaken in a group of 42 lichen planus (LP) patients (15 with urolithiasis and 27 without). Normal mean values of calcium, phosphorus, uric acid and creatinine were found in the serum and in the 24-hour urine collection. However, 9 patients (21%) manifested laboratory deviations consisting of hyperuricemia, hyperuricosuria or hypercalciuria, or combinations of the three. The prevalence of hyperuricemia among LP patients was greater than in matched controls and vis-à-vis the recorded prevalence of hyperuricemia in the general population and in other calcium stone formers. These findings may suggest involvement of metabolic defects in LP. Key words: Urolithiasis; Hyperuricemia; Metabolic disorders.**

(Accepted February 16, 1990.)

Acta Derm Venereol (Stockh) 1990; 70: 441-442.

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The etiology of lichen planus (LP) is unknown. Genetic factors, stress, drugs, abnormal carbohydrate metabolism and liver disease have been reported in association with LP (1-5). Recently, we have observed an increased prevalence of urolithiasis in LP patients (6). The present study constituted an attempt to identify possible lithogenous factors in LP.

### PATIENTS AND METHODS

Forty-two LP patients (19 males, 23 females, average age 51 years) with active disease were evaluated: 15 patients with known urolithiasis and 27 LP patients without known urolithiasis. None of the patients had been receiving any systemic drugs at the time of the investigation or during the preceding month.

Determinations of calcium, phosphorus, uric acid and creatinine in the serum and in the 24-hour urine collection were made using a "Technicon Autoanalyzer". Determination of urinary pH was performed in fresh morning urine samples. In patients with abnormalities in the serum or 24-h urine collection, several repeated tests were made, and the mean value was calculated for each of the above laboratory parameters.

Forty patients (20 males, 20 females, average age 60 years) without known metabolic malignant or infectious diseases, untreated with diuretic drugs served as controls.

The statistical analysis was made using Students' *t*-test or the  $\chi^2$ -test, as necessary.

### RESULTS

The mean serum values of calcium, phosphorus, uric acid and creatinine, as well as the mean values of urinary pH and the mean 24-h urinary values of calcium, phosphorus and uric acid, were all within normal limits in LP patients. There was no statistically significant difference between values recorded for patients with urolithiasis and those without.

Nevertheless, 9 of 42 LP patients (21%) manifested various laboratory deviations, viz. hyperuricemia (renal type), hyperuricosuria, or hypercalciuria, or combinations of the three (Table I).

Whereas the overall prevalence values of hyperuricosuria (7%) and hypercalciuria (10%) in LP patients did not differ significantly from those recorded in controls (12% and 6%, respectively), the overall prevalence of hyperuricemia among the 42 LP patients (12%) was significantly higher ( $p < 0.05$ ) than in 40 matched control patients free from hyperuricemia.

### DISCUSSION

Recently, we reported an increased prevalence of urolithiasis (15%) in 130 Israeli LP patients (6). Moreover, in most of these LP patients, the appearance of urolithiasis preceded LP by an average period of 13 years and could not be regarded as secondary to the skin disease (6). In view of these observations it has been suggested that basic metabolic disorders responsible for the development of urolithiasis may exist in LP and furthermore, may play some part in the still obscure etiogenesis of LP (7).

The present study, which constituted an attempt to identify possible lithogenous factors in LP, revealed the existence of laboratory deviations consisting of hyperuricemia, hyperuricosuria and hypercalciuria, alone or combined in 9 (21%) of 42 LP patients.

Table I. Laboratory deviations and the biochemical profile of 9 LP patients

UL: urolithiasis; RH: renal hyperuricemia; H: hyperuricosuria; IH: idiopathic hypercalciuria

Age/Sex	UL	Lab. deviation	Mean abnormal values <sup>a</sup>
70/F	+	RH	Serum UA: 10.8
53/M	-	RH	Serum UA: 8.6
67/M	+	RH	Serum UA: 8.4
77/M	+	RH	Serum UA: 9.4
43/M	+	H	Urine UA: 893
43/F	+	IH	Urine Ca: 328
46/F	-	H + IH	Urine UA: 807 Urine Ca: 338
55/F	-	H + IH	Urine UA: 822 Urine Ca: 433
63/M	+	RH + H	Serum UA: 9.7 Urine Ca: 476

<sup>a</sup>Normal values of uric acid (UA) and calcium (Ca): Serum UA (mg %): 3-8; Urine UA (mg/24 h): <800 (M), <700 (F); Urine Ca (mg/24 h): <300 (M), <250 (F).

Of these, only the prevalence of hyperuricemia (12%) was found to be significantly higher than that recorded for the controls studied by us. Furthermore, the prevalence of hyperuricemia in LP patients has been found to be greater than the recorded prevalence of hyperuricemia in the general population of Israel (5-7%) (8), and in other stone formers (6%) (9).

The mechanism responsible for hyperuricemia and its possible relation to the pathogenesis of urolithiasis in LP is still obscure. Hyperuricemia has been reported in psoriasis, another papulosquamous disease (10). However, a postulated mechanism for LP-associated hyperuricemia cannot include overproduction of uric acid from accelerated epidermal cell proliferation (as in psoriasis), since the kinetic features of epidermal cells differ in these two diseases (1). Furthermore, overproduction of uric acid,

as manifested by hyperuricosuria, was not observed in any of the 5 LP patients with hyperuricemia. It seems that further investigations are necessary in order to elucidate the metabolic basis of urolithiasis and of hyperuricemia in LP.

#### ACKNOWLEDGEMENT

This study was supported by the I. Katzenellenbogen Research Foundation, Sackler Medical School, Tel Aviv University, Israel.

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