



## Correspondence

### Serum prolactin levels in patients with psoriasis: Results of a pilot study

Sir,

Prolactin possibly plays a pathogenetic role in psoriasis by stimulating keratinocyte proliferation, T-lymphocyte interferon gamma production and promoting angiogenesis<sup>1</sup>. The inhibition of the T-suppressor cell functions by prolactin may serve to promote psoriatic plaque development<sup>2</sup>. It has been postulated that retinoids decrease the prolactin secretion from pituitary gland and add to their antipsoriatic effect<sup>3</sup>. Bromocriptine, an antiprolactin drug has been found useful in the treatment of psoriasis and psoriatic arthritis<sup>4,5</sup>. There are studies demonstrating serum prolactin levels varying with severity, duration and treatment of psoriasis<sup>5-8</sup>. However, not many studies are available from India.

Fifty five male patients aged 22-66 years (mean  $\pm$  SD 42.30 $\pm$ 12.72 yr) having chronic plaque psoriasis for at least six months and presenting at the Dermatology, Venereology and Leprosy outpatient department, of Dr R.P. Government Medical College, Kangra (Tanda), Himachal Pradesh, India, during January to December 2012, were included in this study. Only those patients who gave written informed consent were included. Except for topical emollients and oral anti-histaminics, all topical and systemic treatments were stopped for two and four wk respectively before blood sampling. Patients with palmoplantar psoriasis, psoriatic arthritis, on medications or who had consumed foods (during the last one week) affecting prolactin levels (phenothiazines, metoclopramide, calcium channel blockers, methyl dopa, cimetidine, alcohol, coffee and animal proteins) were excluded from the study. Patients with cardiovascular disease, peripheral vascular disease, systemic lupus erythematosus or having abnormal haemogram, fasting blood glucose, hepatorenal function tests or thyroid functions tests were also excluded. The study was approved by the institutional ethics committee.

Demographic profile, clinical details and baseline body surface area (BSA) involvement and psoriasis area-and-severity index (PASI) score<sup>9</sup> were recorded and severity of psoriasis was graded as mild, moderate or severe (Table I). The 55 age-matched male patients (45.52 $\pm$ 11.77 yr, range 20-65 yr) with or without minor dermatoses (dermatophytosis, scabies) and having no personal or family history of psoriasis, were included as controls. Blood samples (5 ml) were collected after overnight fasting between 0800 and 1000 h by antecubital venepuncture. Quantitative estimation for serum prolactin was performed by standard chemiluminescent immunoassay method and as per manufacturer protocol using Immulite<sup>®</sup> ready to use *in vitro* kits (Siemens Healthcare, Diagnostic Products Ltd., UK). Magnetic resonance imaging (MRI) of brain was performed to exclude prolactinoma in case serum prolactin levels exceeded 100 ng/dl.

Of the 55 patients, 25 (45.5%) were aged between 22 and 40 yr, 23 (41.8%) were between 41 and 60 yr and seven (12.7%) patients were >60 yr of age. The duration of psoriasis varied between six months and 20 yr. Thirty five (63.6%) patients had the disease for less than five years while in 20 (36.4%) patients it was present for more than five years. BSA involvement was <10 per cent in 38 (69%), 10-20 per cent in 10 (18.2%) and >20 per cent in 7 (12.8%) patients, respectively. PASI score of <6 was seen in 41 (74.5%), 10 (18.2%) patients had PASI score of 6-12 and it was >12 in four

**Table I.** Psoriasis severity score

Severity	BSA (%)	PASI score
Mild	<10	<6
Moderate	10-20	6-12
Severe	>20	>12

BSA, body surface area; PASI, psoriasis area-and-severity index

**Table II.** Serum prolactin levels of patients and controls

Serum prolactin levels (normal - 1.9-25 ng/ml)	Number of patients (%) (n=55)	Number of controls (%) (n=55)
Reference values (range)		
1.9-9	12 (21.8)	34 (61.8)
9.1-18	27 (49.1)	20 (36.4)
18.1-25	14 (25.5)	1 (1.8)
25.1-32.54	2 (3.6)	0
Summary of serum prolactin levels		
Range	4.1-32.54	1.9-19.5
Mean	14.37±6.74	8.40±4.50

(7.3%) patients. Serum prolactin levels (Table II) in 53 (96.4%) patients were though within normal range (1.9-25 ng/ml) but on higher side and varied between 4.1 and 24.68 ng/ml (14.37±6.74 ng/ml). The remaining two (3.6%) patients had serum prolactin levels above normal (26.50 ng/ml and 32.54 ng/ml). The controls had serum prolactin levels within normal range (8.40±4.50 ng/ml).

Elevated serum prolactin levels in patients with psoriasis have been considered to play a role in keratinocyte hyperproliferation and inflammation through enhanced production of chemokine CXC ligand (CXCL) 9, CXCL10, CXCL11<sup>6,10</sup>. Several workers have postulated significance of hyperprolactinaemia in the pathogenesis of psoriasis<sup>5-7,10</sup>. El-Khateeb *et al*<sup>7</sup> after studying elevated prolactin levels in the serum and blister fluid of psoriatic lesional skin of 15 psoriasis patients and healthy controls proposed that it was perhaps locally produced prolactin involved in the pathogenesis of psoriasis. Giasuddin *et al*<sup>6</sup> observed significantly higher mean serum prolactin levels in psoriasis (25.8±16.1 ng/ml) as compared to that in atopic dermatitis (9.1±4.7 ng/ml) and healthy controls (10.3±5.3 ng/ml). Dilmé-Carreras *et al*<sup>5</sup> observed significantly increased serum prolactin levels in psoriasis patients (21.4±16.7 ng/ml) as compared to healthy controls (8.4±5.2 ng/ml). The levels reduced significantly six weeks after treatment with tacalcitol ointment suggesting an association of elevated serum prolactin and disease activity<sup>5</sup>. The mean serum prolactin levels in most of our patients (96.4%) were on higher side of the normal as compared to that in controls. However, there was no variation of serum prolactin levels with reference to the PASI score. Gorpelioglu *et al*<sup>11</sup> also reported similar findings in their study of 39 psoriasis patients and 36 controls. However, they did not consider increased prolactin levels in their nine patients and five controls significant as these were below 100 ng/ml, the minimum

limit for the diagnosis of prolactinoma. Azizzadeh *et al*<sup>12</sup> noted that serum prolactin levels varied with severity of disease in patients but observed no significant difference in mean serum prolactin levels between patients and controls. Keen and Hassan<sup>13</sup> observed serum prolactin levels varying with severity of psoriasis and correlating with duration and treatment. Whether prolactin plays any significant role in the pathogenesis of psoriasis, its high serum levels are biological markers of disease activity or bromocriptine becomes a useful therapeutic option need confirmation after well-designed studies. Small number of patients/controls and no therapeutic follow up were major limitations of our study.

**Conflicts of Interest:** None.

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