Association of polymorphic light eruption and autoimmune thyroiditis

Sir,

Polymorphic light eruption (PMLE) is the most common, recurrent idiopathic acquired photodermatosis. It's prevalence varies between 10 and 20% in different populations, with females being more commonly affected.[1,2] Thyroid disease, especially hypothyroidism due to autoimmune thyroiditis, is the most common endocrinal disease. It's prevalence varies between 3 and 10% in varied populations, females being 5–8 times more affected than males.[3] Patients with known hypothyroidism presented with PMLE raised questions about any association between the two. PMLE patients were screened for hypothyroidism to find out any such association.

Patients with classical cutaneous lesions of PMLE, who attended to our skin OPD between January and September 2008, were included for screening of hypothyroidism. Detailed history, sun exposure and their relation to sun exposure were recorded. Skin biopsy for histopathological confirmation was done as and when required, which revealed perivascular and periappendageal lymphohistiocytic infiltrate in upper and mid dermis. Patients with other known photosensitive diseases like lupus erythematosus, patients who were on photosensitive drugs 3 months prior to the onset of their PMLE and pregnant patients were not included in the study. Thyroid stimulating hormone (TSH), free thyroxine (FT4) and free triiodothyronine (FT3) were measured by chemiluminescence assay in all the patients. TSH is the most sensitive screening test for hypothyroidism.

FT4 and FT3 are the only accurate measures of actual active thyroid hormone levels in blood without being affected by a change in binding protein levels. If a patient's TSH was elevated and FT4 and/or FT3 were decreased, they were labeled as having overt hypothyroidism. In case TSH was elevated and FT4 and FT3 were normal, they were considered to have subclinical hypothyroidism. In both these groups, antithyroid peroxidase antibodies (anti TPO ab) were estimated by microparticulate enzyme immunoassay by AxSYM (Abbot Health Care, USA) to confirm their autoimmune hypothyroid disease. As most believe now that subclinical hypothyroids are to be treated to prevent further worsening of their hypothyroidism, both overt and subclinical hypothyroids were considered to have hypothyroidism in this screening. Patients with recurrent PMLE and systemic symptoms were also tested for antinuclear antibodies and anti DNA antibodies to exclude systemic lupus erythematosus. Forty controls, who were not having any photosensitive diseases, were also screened for hypothyroidism for comparison. Statistical analysis was done by using Pearson Chi-square test and Fischer's exact test. Confidence intervals (CI) were measured by using software from Dimension research, Inc, Chicago. This study has been assessed and approved by institutional ethics committee.

One hundred and twelve PMLE patients (86 females and 26 males) were screened for hypothyroidism. Twenty nine (25.9%; 95% CI 18–34%) were found to have hypothyroidism, including 27 females (31.3% of females screened; 95% CI 21–41%) and 2 males. Of the 40 controls (32 females and 8 males), only 3 females (7.5%; 95% CI 0–15%) were found to have hypothyroidism and none of the male controls had it. Out of the 29 hypothyroids with PMLE, 15 were known hypothyroids and 14 (8 overt and 6 subclinical) were newly found in our screening. The *P* values calculated by both Pearson Chi-square test and Fischer's exact test were significant (<0.05). Hasan *et al.*[4] stated that PMLE is a long standing, slowly ameliorating disease with some tendency to development of autoimmune disease or thyroid disorder, especially in female patients. In their study, 11.7% (11 of 94) had autoimmune hypothyroid disease compared to 5% prevalence in their local population. In our study 25.9% were found to have autoimmune hypothyroid disease compared to 5–10% prevalence in our local population.[5] In females, the prevalence was found to be much higher (31.3%). The 25.9% positivity (95% CI 18–34%) compared to 7.5% in control group and 5–10% prevalence in normal population did suggest a significant relation between PMLE and autoimmune thyroid disease rather than a mere coincidence. The above results suggest that screening all PMLE patients for autoimmune thyroiditis is advisable. Probably, the relation between the two diseases is immune dysfunction causing hypersensitivity reaction in PMLE and antibody generation in thyroid disease. This relationship between the two needs to be further evaluated by involving a larger number of PMLE patients, to substantiate whether this positive association is because of autoimmune dysfunction or causally related.

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