Hypothyroidism and Primary Pulmonary Hypertension

To the Editor:

We read with interest the excellent article on primary pulmonary hypertension (PPH) by Archer and Rich in the November 28, 2000, issue of Circulation. They did not mention, however, the association between hypothyroidism and PPH. Curnock et al have carried out a retrospective review of 41 patients with PPH. Of the 40 patients studied, 9 (22.5%) had evidence of hypothyroidism.

The association between PPH and hypothyroidism may have an autoimmune basis, in view of the known association of both diseases with autoimmune diseases. In fact, PPH is associated with autoimmune antibodies even in the absence of clinical autoimmune disease, and patients with both PPH and hypothyroidism have clinical evidence of connective tissue disease or positive serological markers of autoimmunity. Yani-Landau et al found a 30% prevalence of antithyroglobulin antibodies in 40 patients with PPH. This is important because the likelihood of progression of subclinical hypothyroidism to clinical hypothyroidism increases if thyroid antibodies are present.

There is a link between thyroid dysfunction and vascular reactivity, a phenomenon that may precede PPH. Raynaud’s phenomenon, which is seen in PPH, also occurs in hypothyroidism and improves with thyroid hormone supplementation. In an animal model, hypothyroidism has been shown to significantly affect the tissue levels of endothelin-1, a potent vasoconstrictor peptide that may contribute to the pathogenesis of PPH.

Reports of high levels of neopterin in a group of patients with HIV-associated PPH point toward the possibility that inflammation is a common link between hypothyroidism and PPH. This association is clinically important because hypothyroidism is associated with hypoventilation and hypoxemia, which worsen coexisting pulmonary hypertension. In view of the above, we recommend that all patients with PPH should be screened for possible coexisting hypothyroidism.

A. S. Kashyap
Department of Medicine
Armed Forces Medical College
Pune 411 040
India

Surekha Kashyap
Department of Hospital Administration
Armed Forces Medical College
Pune 411 040
India

skashyap@pn2.vsnl.net.in

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A.S. Kashyap and Surekha Kashyap

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