

## **Elevated Carboxyhemoglobin in Active Asthma and Allergic Rhinitis as Measured by Pulse CO-Oximetry**

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Elevated levels of exhaled carbon monoxide have been reported in patients with active or persistent asthma or allergic rhinitis.

With the recent availability of a noninvasive pulse CO-Oximeter that measures carboxyhemoglobin, measurements were made on healthy clinic staff as well as children with controlled or active asthma and asymptomatic or active allergic rhinitis to assess whether this test might have applicability in these diseases. Carboxyhemoglobin (SpCO%) was measured by a pulse CO-Oximeter during an initial clinic assessment of patients by a single physician in a Pediatric Pulmonary Clinic.

Fifty-one patients with uncontrolled asthma (average age 7.8 years) had an average SpCO% of 4.8%, and 87 patients with controlled asthma (average age 8.8 years) had an average SpCO% of 0.3%, a significant difference,  $P < 0.001$ . Seven patients with vocal cord dysfunction (average age 13.6 years) had an average SpCO% of 0.43%. In regard to allergic rhinitis, 122 symptomatic patients (average age 6.9 years) had an average SpCO% of 7.3%, while 40 asymptomatic patients (average age 7.4 years) had an average SpCO% of 1.5%,  $P < 0.001$ .

These preliminary observations suggest that SpCO% may be a useful, noninvasive measure of asthma or allergic rhinitis activity.