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Left ventricular hypertrophy is a common echocardiographic abnormality in severe obstructive sleep apnea and reverses with nasal continuous positive airway pressure.

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STUDY OBJECTIVES: To determine cardiac structural abnormalities by echocardiography in subjects with severe obstructive sleep apnea (OSA), and to determine the long-term effects of nasal continuous positive airway pressure (CPAP) on such abnormalities. DESIGN: Polysomnography was conducted on oximetry-screened patients who showed a desaturation index > 40/h and > or = 20% cumulative time spent below 90%. From these, 25 patients with severe OSA but without daytime hypoxemia underwent echocardiography prior to, then 1 month and 6 months following initiation of CPAP treatment. SETTING: Outpatient sleep disorders center. RESULTS: Of the 25 patients, 13 patients (52%) had hypertension by history or on physical examination. Baseline echocardiograms showed that severe OSA was associated with numerous cardiovascular abnormalities, including left ventricular hypertrophy (LVH) [88%], left atrial enlargement (LAE) [64%], right atrial enlargement (RAE) [48%], and right ventricular hypertrophy (16%). In all patients (intent to treat) as well as those patients compliant with CPAP therapy (84% > 3 h nightly), there was a significant reduction in LVH after 6 months of CPAP therapy as measured by interventricular septal distance (baseline diastolic mean, 13.0 mm; 6-month mean after CPAP, 12.3 mm; $p < 0.02$). RAE and LAE were unchanged after CPAP therapy. CONCLUSIONS: LVH was present in high frequency in subjects with severe OSA and regressed after 6 months of nasal CPAP therapy.

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