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Chronic liver injury during obstructive sleep apnea.

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Patients with obstructive sleep apnea (OSA) are at risk for the development of fatty liver as a result of being overweight. Several data suggest that OSA per se could be a risk factor of liver injury; ischemic hepatitis during OSA has been reported, and OSA is an independent risk factor for insulin resistance. Therefore, we investigated liver damage and potential mechanisms in 163 consecutive nondrinking patients with nocturnal polysomnographic recording for clinical suspicion of OSA. Serum levels of liver enzymes were measured in all patients. Liver biopsy was offered to patients with elevated liver enzymes. Intrahepatic hypoxia was assessed by the expression of vascular endothelial growth factor (VEGF) on liver biopsy specimens. Severe OSA (apnea-hypopnea index [AHI] > 50/hr) was seen in 27% of patients; 52% had moderate OSA (AHI 10-50/hr), and 21% had no OSA. Overall, 20% had elevated liver enzymes. Independent parameters associated with elevated liver enzymes were body mass index (BMI) (OR: 1.13; CI: 1.03-1.2) and severe OSA (OR: 5.9; CI: 1.2-29). Liver biopsy was performed in 18 of 32 patients with elevated liver enzymes and showed steatohepatitis in 12 cases, associated with fibrosis in 7 cases. Patients with severe OSA were more insulin-resistant according to homeostasis model assessment, had higher percentage of steatosis as well as scores of necrosis and fibrosis, despite similar BMI. Hepatic immunostaining used as an indirect marker of hypoxia was not different between patients with or without severe OSA. In conclusion, severe OSA is a risk factor for elevated liver enzymes and steatohepatitis independent of body weight. Promotion of insulin resistance is probably involved. Further studies are needed to determine whether hypoxia contributes directly to liver injury.

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