The role of curcumin in streptozotocin-induced hepatic damage and the trans-differentiation of hepatic stellate cells.

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Diabetic patients frequently suffer from non-alcoholic steatohepatitis. The current study aimed to investigate the role of curcumin and the response of hepatic stellate cells in streptozotocin (STZ)-induced hepatic damage. Sixty male rats were divided into three groups. The normal control injected with a citrate buffer vehicle and the diabetic control group which was injected intraperitoneally (IP) with a single-dose of streptozotocin (50 mg/kg body weight) and a diabetic group was treated with an oral dose of curcumin at 80 mg/kg body weight daily for 60 days.

**Results.** Curcumin effectively counteracts oxidative stress-mediated hepatic damage and improves biochemical parameters.

Alpha-smooth muscle actin (α-SMA) was significantly reduced, and insulin antibodies showed strong positive immunoreactivity with curcumin administration. These results optimistically demonstrate the potential use of curcumin, which is attributed to its antiradical/antioxidant activities and its potential β-cell regenerative properties. Also, it has the capability to encourage the trans-differentiation of hepatic stellate cells into insulin-producing cells for a period of time. In addition, as it is an anti-fibrotic mediator that inhibits hepatic stellate cell activation and the transition to myofibroblast-like cells, this suggests the possibility of considering curcumin's novel therapeutic effects in reducing hepatic dysfunction in diabetic patients.