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Effects of Cyclosporin A on rat pancreatic β and D cells and glucose levels (An immunocytochemical study)

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Abstract: The effects of cyclosporin A (CsA) on rat pancreatic islet β and D cells and plasma glucose levels at doses of 50 mg/kg body weight applied for 20 days were investigated. Fifteen Swiss Albino rats were used as the study group and 5 were the control group. Rat pancreatic islet β and D cells were stained immunocytochemically by anti-insulin and anti-somatostation antibodies. β and D cells from 15 different islets were evaluated qualitatively and quantitatively. Plasma glucose changes were also compared between the study and the control group. The pancreas morphology was found to be normal in both groups by light microscopy. The difference between the numbers of β and D cells of pancreatic islets among the groups was not statistically significant. The staining intensity of islet β cell cytoplasm was lighter in the CsA administered rats. Plasma glucose levels of CsA-exposed rats increased significantly compared with the control group ($p<0.05$). In conclusion, pancreatic islets were not found to be affected morphologically by CsA at the light microscopic level. The present findings show that CsA impairs the glucose metabolism possibly due to β cell dysfunction.

Key Words: Cyclosporin A, pancreatic islet, β cell, D cell, glucose.

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