Thesis Title A Study of Antibodies Specific to Islet Cells and Glutamic Acid Decarboxylase in Thai Diabetic Patients

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ABSTRACT

Islet cell autoantibodies (ICA) were determined by immunoperoxidase technique on formalin-fixed, paraffin-embedded human pancreatic tissue, in patients with insulin-dependent diabetes mellitus (IDDM), noninsulin-dependent diabetes mellitus (NIDDM), fibrocalculous pancreatic diabetes (FCPD) and normal healthy individuals. ICA titer $\geq$ 1:20 was found in 11.11% (2/18) of newly diagnosed IDDM patients, 1.72% (1/58) of patients with NIDDM, and none of 13 patients with FCPD. Approximately 3 percentages (3/84) of normal controls also had ICA titer $\geq$ 1:20. The proportion of newly diagnosed IDDM patients who had ICA at this level was not significantly higher than those of normal controls ($p>0.05$). By using the cut-off level for positive result

of ICA detection at titer ≥ 1:20, the sensitivity and the specificity of ICA detection by this method were 11.11% (2/18) and 97.42% (151/155), respectively.

In this study, the slot-blot ELISA for the detection of anti-GAD antibodies was also developed. The optimal concentration of GAD for determining anti-GAD antibodies was 50 ug/ml and the optimal dilution of the anti-human IgG alkaline phosphatase conjugate was 1:1,000. The optimal time for incubation of sera and the conjugate was 1 hour, at room temperature.

By using the slot-blot ELISA developed, anti-GAD antibodies titer ≥ 1:16,000 were found in 20% (6/30) of patients with IDDM, 20% (7/35) of those with NIDDM, 15.38% (2/13) of FCPD patients and 1.59% (1/63) of normal controls. The proportion of IDDM patients and NIDDM patients who had anti-GAD antibodies at this level was significantly higher ($p<0.05$) than that of normal controls, while there was no significant difference ($p>0.05$) between the group of FCPD patients and the latter. By using the cut-off level for positive result of anti-GAD antibodies detection at titer ≥ 1:16,000, the sensitivity and specificity of anti-GAD antibodies detection by using slot-blot ELISA were 20% (6/30) and 90.99% (101/111), respectively.