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INFORMATION

Hokkaido University granted the degree of doctor of Veterinary Medicine to the following 39 graduates of the Faculty of Veterinary Medicine on 25 March, 1991.

The authors' summaries of their theses are as follows:

EFFECT OF INTERLEUKIN-1 β ON SYMPATHETIC NERVE ACTIVITY IN RATS AND ITS ROLE IN THE ACUTE PHASE RESPONSE.

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Interleukin-1 β (IL-1 β) is one of the cytokines that is produced primarily by macrophages as well as some other types of cells such as glia cells. It is also a critical factor in mediating the "acute phase response" observed during infection and injury. IL-1 β administered centrally or peripherally induced a broad spectrum of changes in the immune, endocrine, metabolic and central nervous system. In this study, the effect of IL-1 β on the sympathetic nervous system was examined and its possible role in the acute phase response assessed.

Intraperitoneal injection of IL-1 β induced fever, leukocytosis, neutrophilia, hypoglycemia, elevated plasma corticosterone levels and decreased plasma levels of iron and triglyceride. Pre-treatment of rats with 6-hydroxydopamine and a ganglion blocking agent suppressed the hypoglycemia and leukocytosis induced by IL-1 β. In addition, IL-1 β injection increased norepinephrine turnover rate as an index of sympathetic nerve activity, in the spleen and lung, but not in the submandibular gland, heart, liver, pancreas and brown adipose tissue. Norepinephrine turnover rate also increased in the hypothalamus, but not in the medulla oblongata.

These results suggest that IL-1 β activates the sympathetic nerves specifically in the spleen and lung, and this reaction plays a significant role in acute phase responses.