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The cerebrospinal fluid increased and was transparent and diluted in all of the horses. No abnormalities were noticed in the vertebral canal and curve of any of the horses.

The central nervous system developed diffuse leucomyelodegeneration (leucomyelopathy) in the entire white matter extending the almost overall length of the spinal cord. Degeneration of the same kind occurred also in the limbic regions and medial longitudinal fascicles of the posterior brainstem including midbrain, and in the optic nerves and tracts. No malacic lesions were found. The leucomyelodegeneration showed a tendency to be more intensive in the limbic regions, especially in the lateral and ventral funicles. It was difficult to indicate positive findings such as the leucomyelodegeneration develops a tendency to system affection of the nerve fiber tracts. Minute eosinophilic cytoplasmic inclusion bodies were found in the following cells: ependymocytes of the ventricle system, especially of the mesencephalic aqueduct, and of the spinal central canal; nerve cells in the central gray substance of the midbrain; nerve cells in the spinal gray matter; oligodendroglia cells in the spinal white matter; nerve cells in the spinal ganglion; epithelial cells of the chorioid plexuses.

Among the peripheral nerve changes, multifocal loss of nerve fibers in the posterior cutaneous nerve of the thigh was worth notice.

The present investigations reveal that SAKURA's (1977) observations may have the universality.

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ON THE CHOLINERGIC NERVE MEDIATED CONTRACTION
OF THE SMOOTH MUSCLE OF THE
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1) The presynaptic inhibitory effects of catecholamines and clonidine on the cholinergic transmission were investigated using the vagus nerve-smooth muscle preparations isolated from the chick proventriculus.

2) Adrenaline, clonidine ($10^{-8} \sim 2.5 \times 10^{-7}$ M), noradrenaline ($10^{-7} \sim 2.5 \times 10^{-6}$ M) and dopamine ($10^{-5} - 10^{-4}$ M) inhibited the contraction induced by stimulation of the vagus nerve with a low frequency (0.5 Hz), but they did not inhibit that elicited

by acetylcholine ($5 \times 10^{-8} \sim 5 \times 10^{-7}$ M). The inhibitory effects increased with increasing the concentrations, thus, the concentration producing 50% inhibition was 10^{-7} M for adrenaline and clonidine, 10^{-6} M for noradrenaline, and 5×10^{-5} M for dopamine.

3) Phenylephrine poorly inhibited the response to stimulation of the vagus nerve at 2.5×10^{-6} M.

4) Isoproterenol ($5 \times 10^{-8} \sim 5 \times 10^{-7}$ M) inhibited both the responses induced by stimulation of the vagus nerve and acetylcholine.

5) Clonidine failed to inhibit the response induced by stimulation of the vagus nerve with a higher frequency, such as 8 or 16 Hz.

6) The inhibitory effects of adrenaline, noradrenaline and clonidine were blocked by phentolamine (2.7×10^{-6} M) but not affected by 5-(3-tert-Butylamino-2-hydroxy) propoxy-3, 4-dihydrocarbostyryl hydrochloride (OPC 1085), which was effective in blocking the effect of isoproterenol.

7) Clonidine also inhibited the response to transmural stimulation at 0.5 Hz in the presence of hexamethonium. However, the rate of inhibition was smaller than that of the response induced by stimulation of the vagus nerve.

These results suggest that presynaptic α -receptors are present in the myenteric plexus of the chick proventriculus and play an important role in controlling the cholinergic transmission. It seems likely that adrenaline, noradrenaline, and clonidine may inhibit the acetylcholine output induced by the vagal and transmural stimulation via the activation of the α -receptor, and may result in the inhibition of the contraction.

STUDIES ON ANTI-TUMOR IMMUNITY IN MAREK'S DISEASE AND VACCINAL IMMUNITY CAUSED BY HERPESVIRUS OF TURKEY IN CHICKENS

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These experiments were made to clarify the anti-tumor immunity in Marek's disease (MD) and the vaccinal immunity caused by herpesvirus of turkey (HVT) in chickens. The cytotoxic effects of peripheral blood lymphocytes (PBL) and sera from chickens infected with Marek's disease virus (MDV) or vaccinated with HVT against MD derived lymphoblastoid cell line (MSB-1) cells were studied.