- 48) Anti-hypertensive Effect of Chitosan. Hideo Kato, Tomoko Taguchi, Naoko Karukaya, Mayumi Seike. Hiroshima Women's University, Hiroshima-ken 734. Mari Kondo, and Hiromichi Okuda. School of Medicine, Ehime University, Ehime-ken 791-02.

It is considered that an excessive intake of salt causes hypertension due to an increase on blood sodium accompanied with an increase of blood volume expansion, a hypertensive effect of sodium on sympathetic nerve system and a decrease of atrial natriuretic peptide.

However, we confirmed in vitro study that angiotensin I converting enzyme (ACE) which is a key enzyme for blood pressure control, is markedly activated by chloride of salt.

Therefore, it was supposed that fecal excretion of the activating factor by dietary fibers enables to prevent or treat against chronic noncommunicable diseases, such as cerebral apoplexy, cardiac diseases or essential hypertension.

To investigate the anti-hypertensive effect of dietary fibers, high salt diet containing alginic acid, which easily absorbing cation, or containing chitosan, which easily absorbing anion, were given to intact rats and spontaneously hypertensive rats (SHR).

When the both rats were given high salt diet for several weeks, systolic blood pressures were significantly higher in SHR. But, systolic blood pressures in both rats were markedly reduced by simultaneous administration of chitosan. Since chitosan easily absorbs with chloride, fecal chloride excretion was facilitated and blood chloride level was decreased.

It was considered that anti-hypertensive effect of chitosan may have caused depression ACE activity in blood.

From these results, it can be supposed that chitosan, accelerating fecal excretion of chloride which activates ACE, may have suppressed a rise in blood pressure by high salt intake.

Furthermore, judging from the anti-hypertensive effect of chitosan, chloride rather than sodium contained in salt that induced hypertension seemed to be responsible for the pressor action.