

Effect of AHCC on Fat Mass of Mice

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(Slide 1)

We have reported how AHCC affects on acute inflammation in mice. As an experimental method, C3H/He mice were divided into 5% AHCC-fed group and tap water-fed group as the control. After two weeks, heat-killed *Enterococcus faecalis* was administered intraperitoneally, and investigated the response of cytokine production so on. As the result, in AHCC-fed group, accumulation of less leukocyte number lead to suppress an excess inflammation. At the same time, decrease of fat weight in mice peritoneal cavity, and change of the fat metabolism were observed. Now we focus on how AHCC affects on fat mass of mice non-treated with dead bacteria.

(Slide 2)

This slide shows fat weight in mice peritoneal cavity, with which treated with dead bacteria after AHCC feeding for 2 weeks. After 24 hours from administration of dead bacteria, the most significant decrease of white fat weight was found. Then, as reported previously, dead bacteria non-treated mice were observed.

(Slide 3)

This slide shows body weight change in AHCC freely fed mice. After 5%AHCC freely fed from day-0, the body weights were measured chronologically. The AHCC-fed group shows a slightly lower body weight than that of AHCC non-treated one. No differences of food and water intake were found between the two groups.

(Slide 4)

The mice were dissected after 2 weeks of AHCC feeding, and the white fat tissue weight in peritoneal cavity was measured. You see fat weights in AHCC-fed group are decreased.

(Slide 5)

Next, blood leptin level, which regulates appetite and body fat mass was investigated. It is known that blood leptin level correlates well with body fat mass. Generally speaking, blood leptin level in fat man is higher than that of thin man. Blood leptin level is lowered in AHCC-fed group, reflecting decrease of fat mass.

(Slide 6)

When serum lipid was measured, total cholesterol level tended to lower, while triglyceride not.

(Slide 7)

To clarify the mechanism of fat tissue mass decrease, fat mass in liver was compared. This slide shows the whole liver weights. After AHCC free intake for 2 weeks, little change was found among them.

(Slide 8)

Lipid was extracted from liver, and phospholipid, triglyceride, and cholesterol were measured to find a significant decrease of cholesterol and triglyceride contents in AHCC-fed group.

(Slide 9)

This slide shows data on liver lipid after 24 hours from administration of dead bacteria in AHCC-fed group 2 weeks after feeding. When caused inflammation, no difference was found in lipid content between the two groups, whereas triglyceride and cholesterol contents were lowered in AHCC-fed group. Cholesterol is absorbed in the lipoprotein form to excrete. After that AHCC may enhance absorption and excretion of the lipoprotein. Further investigation is needed to clarify how AHCC affects on them.

(Slide 10)

Peroxidation degree of the extracted lipid was studied. After 24 hours from administration of dead bacteria to peritoneal in AHCC-fed group 2 weeks after feeding, peroxidized value of liver lipid was investigated by MDA method. The peroxidized lipid content was significantly lowered in AHCC-fed group than in control. Thus, AHCC has function to suppress lipid

peroxidation, in addition to lessen body fat mass.

In conclusion, AHCC is expected to improve mass and quality in fat metabolism, so further investigation on the mechanism is needed.

《Questions and answers》

Hosokawa : Is accumulation of fat in peritoneal cavity related to inflammation?

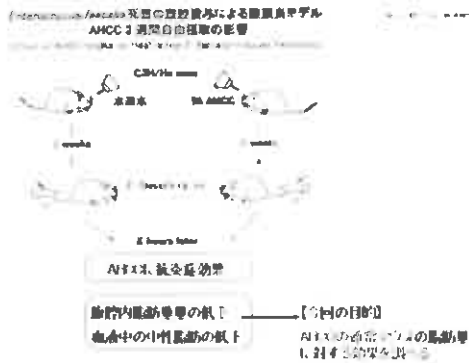
Yui : TNF, which is produced in acute inflammation, is known to inhibit lipase activity. Modulation of the enzyme may result in lowering fat mass.

Hosokawa : Do you mean, though TNF has function to modulate fat mass, AHCC lessen it independently?

Yui : We think we need a further experiment using high fat diet.

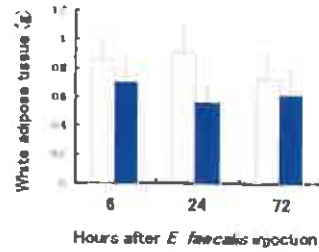
Hosokawa : In this report, AHCC prevents from being harmfully affected by activated oxygen and nitrogen. That is important in view of protecting our living body from oxidized stress. Later, Dr. Matsuzaki will report on preventive effects of AHCC on oxidative stress, so I think a further investigation is needed.

Slide 1



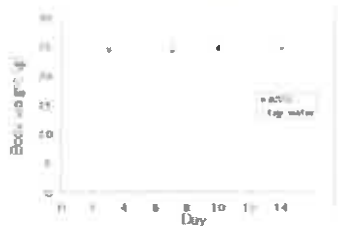
Slide 2

Effect of AHCC on Weight of White Adipose Tissue of Mice Injected with Heat-killed Bacteria



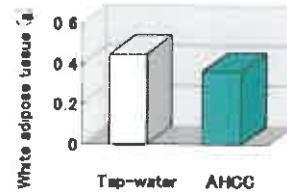
Slide 3

Effect of AHCC on Mouse Body Weight



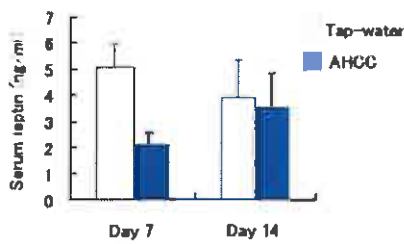
Slide 4

Effect of AHCC on Weight of Abdominal White Adipose Tissue



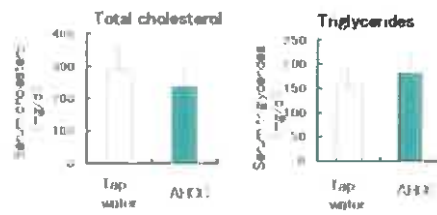
Slide 5

Effect of AHCC on Mouse Serum Leptin Level



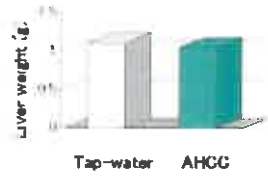
Slide 6

Effect of AHCC on Serum Lipids



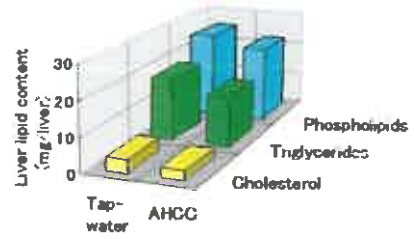
Slide 7

Effect of AHCC on Mouse Liver Weight



Slide 8

Effect of AHCC on Liver Lipid Content



Slide 9

Effect of AHCC on Liver Lipid Content of Mice Injected with Heat-killed Bacteria

