Preemptive Veterinary Medicine of Feline Obesity Disease

Abstract of Doctoral Thesis

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Abstract

Obesity is now a major global health problem. The incidence is rising in recent years not only in developed countries but also in developing countries. Obesity is a non-infectious disease that is a risk factor for serious metabolic diseases such as type 2 diabetes, hypertension, cardiovascular disorders, and cancer, so overcoming it is an urgent issue for human race. In 2000, the Japanese Society of Obesity published the “New Obesity Judgment and Diagnosis Criteria of Obesity disease”. And Obesity disease is defined as obesity that is associated with health problems and requires medical weight loss.

Dogs and cats visiting animal hospitals, like humans, tend to increase obesity with age. In our study, overweight to obesity in dogs in 2019 was 38.3%, and cats were 49.1%. Since the subjects were health check-up animals that are relatively interested in health compared with general owners, it is expected that the ratio of actual visiting animals will be higher.

Cats are more likely to be obese than dogs because of their unique glycolipid metabolism characteristics. Based on these metabolic characteristics of cats, we developed a flowchart and criteria for determining obesity disease. It is divided into simple obesity and obesity disease according to the presence or absence of health disorder. Obesity disease in cats was defined as those showing two or more symptoms of overweight, hyperlipidemia, hypoadiponectinemia,and hyper-SAA symptom over BCS7 / 9.

Quercetin derivative Rv-PEM01 is a plant-derived active ingredient phytochemicals having antioxidative and anti-inflammatory effects. The effect of administering this quercetin derivative to healthy cats and obese cats for 4 weeks was examined. Significant increase in liver function-improves lipid metabolism. Quercetin derivatives can be expected to have anti-oxidant and anti-inflammatory effects even when administered to healthy animals. Therefore, quercetin derivatives can be applied to prevent metabolic disorders such as obesity, hyperlipidemia and type 2 diabetes.

Early diagnosis and appropriate early response are effective in suppressing obesity disease. For this purpose, it is also necessary to

apply genomics, proteomics and metabolomics analysis data accumulated in the process of developing markers for early diagnosis and digitization as big data. If preemptive medicine is used to detect obesity at an early stage and the occurrence of severe metabolic diseases based on obesity can be suppressed, medical costs will be reduced and healthy life expectancy will be extended.

I think there is no doubt that it will contribute not only to economic aspects but also to the realization of a happy society.