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# A Systematic Epigenetic Analysis on ChIP-on-Chip Method in the Cause of Salt Sensitivity High Blood Pressure and Case-Control Study about the Risk Factor

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Summary

(1) An epigenetic analysis using the hereditary salt sensitivity mouse.

An SHR mouse is a hereditary salt sensitivity hypertension mouse and develops systemic high blood pressure / cardiac hypertrophy by a high salt loading intake, become a good animal model of the heart failure onset mechanism. Therefore we analyzed a change of the DNA methylation with the SHR mouse myocardium of each stage of a disease. We applied the whole genome tiling array the ChIP-on-Chip system of the mouse DNA of high salt loading before and after. We analyzed profiling of the methylation as biochemical character and identified about 400 domains, which changed the methylation status. These domains were included cell cycle-related genes, apoptosis genes, genomic imprinted genes and cancer-restraining gene.

(2) DNA methylation in the patients of essential hypertension and their epidemiology.

① We analyzed the DNA methylation about several imprinted genes in the DNA of the patients (58 cases) and their contrast (123 cases). As a result, PEG1, PEG3 genes were significantly changed the methylation status between two groups (P 0.01).

② The high risk factor

By case-control study technique, I used a description for 50 items-type questionnaire about environmental factors and food intake frequency questionnaire about 141 food items. The independent high risk factor were smoking and BMI. The intake frequency of the tempura the retinol were related with an onset risk. On the other hand, the lower risk factor was coffee and green tea intake frequency.

The prevalence of the essential hypertension in the Japanese increases year by year. It is important that even a meaning to search the cause of the gradual increase of the essential hypertension in our country elucidates etiology, and it is thought that the conclusion of this study brings useful information for the life of the nation, administrative advice. However, we could not a conclusion about etiology of the essential hypertension because enough statistical power (the detection power) is not enough. We will analyse it more detailed in future.