Obesity Paradox in Japanese Hemodialysis (HD) Patients

NAGAJIN Group

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Background

Dialysis Outcome and Practice Patterns Study (DOPPS) had suggested that nutritional indicator, including higher body mass index (BMI), has an important factor on the survival of HD patients. On the other hand, obesity is considered to be independent risk factors for the development of cardiac risks in the general population (obesity paradox).

Aims of the Study

To assess the impact of BMI on cardiac function of Japanese HD patients in long term.

Materials and Methods

From April of 2005 to March of 2010, 97 HD patients in our facility with stable BMI and normal protein catabolic rate (nPCR) over 5 years were enrolled in this study after appropriate informed consent. Ultrasound cardiography including ejection fraction (EF) or left ventricle diameter (LVDd) were evaluated before and after the period of > 5 years. The objects were divided into three groups, one for the patients with BMI < 20 (underweight), one for BMI 20-25 (optimal) and BMI > 20 (overweight), and then analyzed the correlation between BMI and cardiac function.

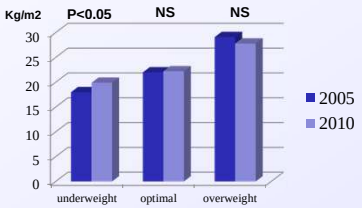
Results

Change in Cardiac Parameters during 5 years

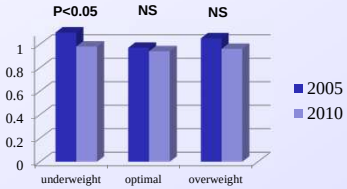
	underweight	optimal	overweight
	2005 / 2010	2005 / 2010	2005 / 2010
No. of patients	44	34	19
DM / non-DM	12 / 32	10 / 24	7 / 12
average LVPW (mm)	10.0 / 10.2	11.5 / 11.9	12.1 / 12.2
average LVDd (mm)	51.3 / 55.2*	54.5 / 55.8	52.5 / 50.8
average EF	0.688 / 0.707	0.679 / 0.699	0.658 / 0.617*

Results

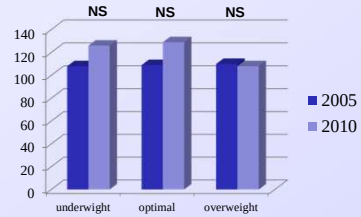
Changes in BMI



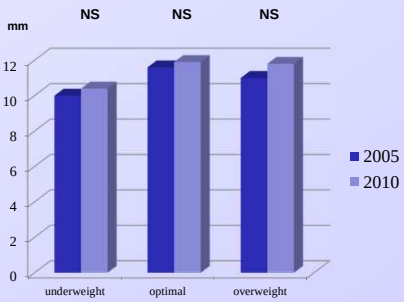
Changes in nPCR



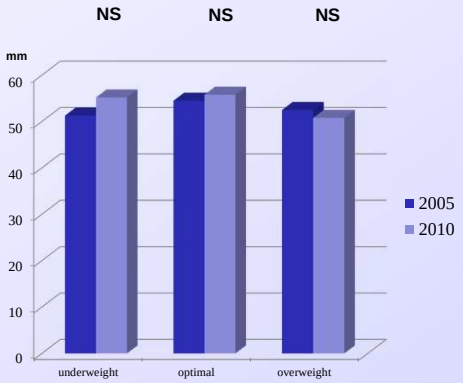
Changes in %CGR



Changes in LVPV (mm)



Changes in LVDd (mm)



Changes in EF

EF in underweight group did not alter after 5 years, whereas EF had significantly decreased in overweight group from 0.658±0.33 to 0.617±0.25 ($p<0.05$).

The increase in LVDd was observed in underweight group from 51.3±18.6 to 55.6±10.9, whereas there were no change in optimal or overweight group.

Nutritional factors including nPCR stayed the same in all groups.

Summary - Conclusions

In Japanese HD patients population where the average body weight is 53-56 Kg in adults, higher BMI indicating obesity may increase cardiac risks presumably associated with various baseline health status including cardiac load.

References

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