長庚醫療財團法人
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The Differences of Dietary Food and Nutrients Intake between obese and non-obese renal transplant recipients in Taiwan

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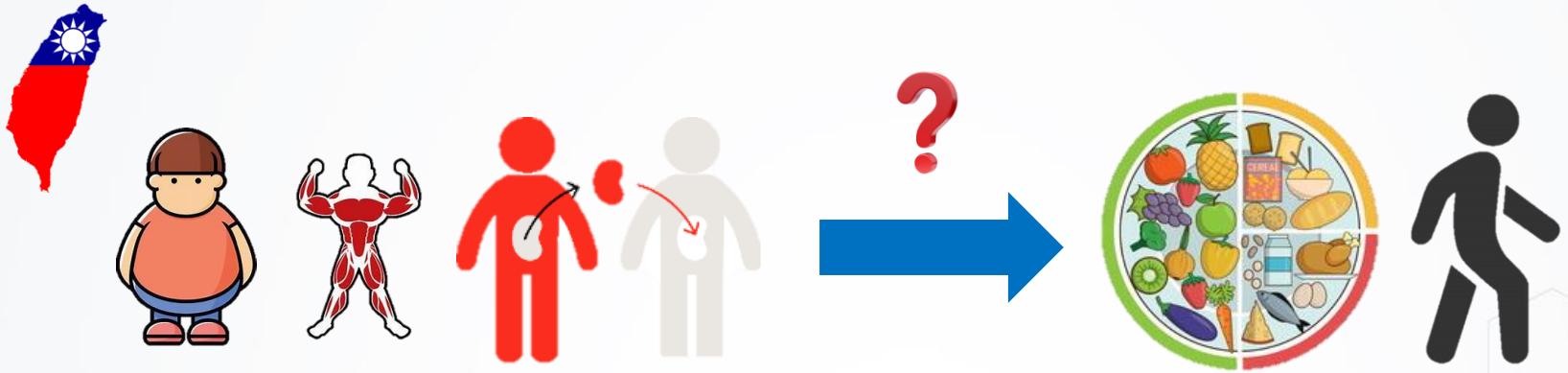
Introduction & Objective

- Cardiovascular disease (CVD) has been increasing globally over the past 40 years meanwhile is the leading cause of mortality in post-renal transplant recipients (RTRs). Obesity is an established risk factor for CVD, however, dietary food and nutrients intake may be affecting factors related to CVD.
- This study is aimed to investigated that the differences of dietary food and nutrients intake between obese and no-obese RTRs in Taiwan.



Obese and no-obese RTRs **Nutrition status**

Method

- A cross-sectional study were recruited 219 RTRs from September, 2016 to December, 2023. Characteristics, anthropometry and laboratory data was retrieved from medical records. A 3-day dietary record (include 2 weekday and 1 holiday) was of dietary data was collected by well-trained dietitian at clinics.

Anthropometric & Laboratory

Dietary intake

Dietitian

3-daydietary records
- 2 weekdays
- 1 holiday

Statistics analysis
SAS 9.4 version

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Result

Table 1. Baseline characteristics of the study population by body size and metabolic health status.

	Non-obese (n=172)		Obese (n=47)		
	Mean	SD	Mean	SD	Significant
Baseline Demographics					
Age, years	51.7	13.9	53.9	13.1	
RT time, years	8.5	8.5	7.7	8.7	
Creatinine, mg/dL	1.5	1.1	1.7	0.8	
GFR, ml/min/1.73m^2	55.7	23	50.9	21.9	0.06
Anthropometrics					
Body mass index, kg/m^2	22.1	2.7	29.6	2.1	*<0.001
Waist circumference, cm	80.7	9.4	98.7	8.4	*<0.001
Body fat, kg	23.9	8.7	32.5	7.1	*<0.001
Muscle mass, kg	25.5	7.6	29.8	5.2	*<0.001
Handgrip strength, kg	29.7	8.7	29.5	9.7	
Physical Activity	1.6	0.2	1.6	0.3	
Metabolic Health Status					
Albumin, g/dL	4.36	0.3	4.02	0.3	*0.005
SBP, mmHg	137.3	19.0	143.6	18.7	
DBP, mmHg	80.7	13.6	81.7	13.7	
Fasting glucose, mg/dL	99.7	25.5	108.9	47.8	0.09
HbA1C,%	6.0	0.9	6.4	1.1	*0.01
HOMA-IR index	1.8	2.4	6.1	22.4	
UA, mg/dL	5.9	1.3	5.8	1.4	
TC, mg/dL	208.5	51.1	197.2	48.0	
HDL-C, mg/dL	59.1	19.8	51.3	16.7	*0.019
LDL-C, mg/dL	120.5	41.4	111.3	40.0	
TG, mg/dL	142.6	99.3	200.4	149.9	*0.019

[1]Analyzed by using t-test.
SD: standard deviation; RT: renal transplant; GFR: glomerular filtration rate; SBP: systolic blood pressure; DBP: diastolic blood pressure; UA: uric acid; TC: total cholesterol; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; TG: triglycerides.

Table 2. Comparison of paired macronutrients between obese and non-obese individuals.

	Non-obese (n=172)		Obese (n=47)		
	Mean	SD	Mean	SD	Significant
Calories, kcal/day	1746.9	410.7	1862.6	586.5	
Calories density, kcal/kg	31.1	8.9	23.2	6.8	*<0.001
Protein, g/day	68.0	18.1	72.6	21.2	
Protein density, g/kg	1.2	0.4	0.9	0.2	*<0.001
Carbohydrate, g/day	188.7	55.0	200.3	78.2	
Fat, g/day	80.3	24.7	85.6	31.5	
Dietary fiber, g/day	12.7	5.1	13.9	6.9	
Taiwan food categories					
Fruits, ex	1.1	1.1	1.1	1.4	
Vegetables, ex	2.6	1.3	2.8	2.4	
Grains, ex	9.3	3.1	9.7	4.3	
Meat, ex	6.1	2.4	6.7	2.3	
Milk, ex	0.4	0.6	0.1	0.3	*<0.001
Nuts and oil, ex	9.5	3.4	10.8	4.5	*0.027

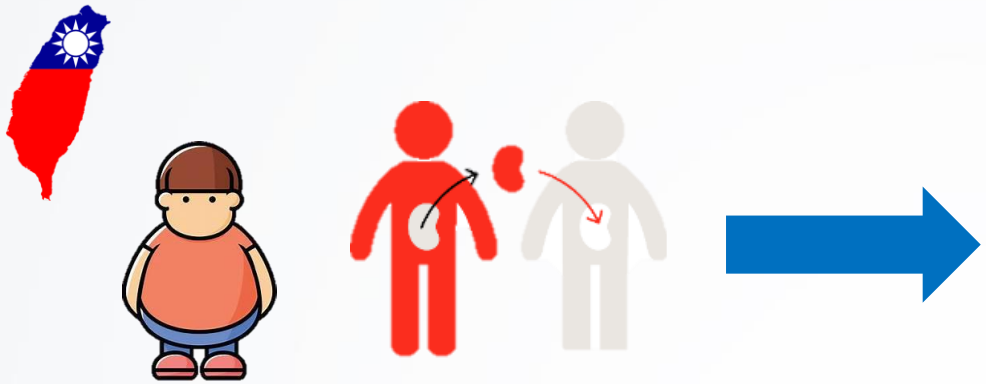
[1]Analyzed by using t-test.
SD: standard deviation.

Obese RTRs

- ↑ Muscle mass, waist circumferences, TG
- ↓ HDL-C, poor kidney function (trend)
- ↓ Dietary intake of dairy
- ↑ Dietary intake of nuts and oil

Conclusion

- Overall, our results were observed that higher metabolic risks and dietary nuts and oil intake and lower dairy intake were observed in obese-RTRs. Further study related to the association between dietary nutrition assessment and obese with metabolic abnormalities risks were warranted.



Obese RTRs

Nutrition status

↑ Dietary nuts and oil intake

↓ Dietary dairy intake

↑ Muscle mass, waist circumferences

↓ Kidney function (trend)

↓ HDL-C, ↑ TG