RESISTANT STARCH DOES NOT INFLUENCE LIPOPROTEIN SUBFRACTIONS PROFILE IN HEMODIALYSIS PATIENTS

Julie Ann Kemp[1], Marcia Ribeiro[2], Nágila Raquel Teixeira Damasceno[3], Marcelo Ribeiro-Alves[4], Denise Mafra[1,2]

[1]Graduate Program in Nutritional Science, Fluminense Federal University (UFF), Niterói-RJ, Brazil.
[2]Post-Graduate Program in Biological Sciences – Physiology, Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro (RJ), Brazil
[3]Department of Nutrition, Faculty of Public Health Nutrition, São Paulo University, São Paulo, Brazil.
[4]HIV/AIDS Clinical Research Center, National Institute of Infectology Evandro Chagas (INI/Fiocruz), Rio de Janeiro (RJ), Brazil.

INTRODUCTION

It is suggested that the progression of chronic kidney disease (CKD), proteinuria, and replacement therapy influence the derangement of the lipoproteins metabolism. These factors affect the composition and functionality of lipoproteins, including their subfractions. Given the importance of cardiovascular disease in patients with CKD, several nutritional strategies have been proposed to improve this outcome, such as resistant starch (RS) supplementation. However, to the best of our knowledge, no study has evaluated the effect of the consumption of RS on high-density lipoprotein (HDL) and low-density lipoprotein (LDL) subfractions.

OBJECTIVE

This study aimed to evaluate whether RS consumption would alter the lipoproteins subfraction in patients with CKD undergoing hemodialysis (HD).

METHODS

This was a randomized, double-blind, placebo-controlled trial in which the patients were allocated to the RS group to receive alternately 9 cookies/day (dialysis days) and 1 sachet/d (non-dialysis days) containing 16g/d of RS (Hi-Maize 260, Ingredion®) or placebo group to receive manioc flour, for 4 weeks. HDL and LDL subfractions were determined using the standardized Lipoprint® system (Quantimetrix Inc., Redondo Beach, California).

RESULTS

Forty participants finished the study: 19 in the RS group (71.4% female; 53 (11) years and 45 (27) months HD vintage) and 21 in the placebo group (36.8% female; 56 (11) years and 36 (49) months HD vintage).

Table 1. Baseline lipoprint results for RS and placebo group.

Variable	RS (n=19)	Placebo (n=21)	p-value
Concentration (mg/dL)			
HDL large	10 (8.5)	12 (10)	0.56
HDL intermediate	21 (11)	18 (9)	0.68
HDL small	5 (5.5)	6 (6)	0.91
VLDL	49 (26)	44 (21)	0.60
IDL-C	17 (14)	14 (11)	0.25
IDL-B	9 (3.5)	8 (2)	0.27
IDL-A	9 (10)	9 (5)	0.37
LDL large	17 (7.8)	20 (12)	0.47
LDL small	2 (6.5)	2 (4)	0.75
Percentual (%)			
HDL large	30 (29.6)	29.5 (22.6)	0.57
HDL intermediate	52.2 (10.3)	51.1 (11.55)	0.84
HDL small	17.2 (17.4)	15.4 (12.15)	0.77
VLDL	29.3 (9.3)	27.7 (8.55)	0.91
IDL-C	10.1 (7.3)	10.2 (7.1)	0.36
IDL-B	5.8 (1.1)	6 (2.65)	0.72
IDL-A	7.2 (3.6)	5 (7.65)	0.17
LDL large	13 (7.8)	15.5 (6.1)	0.20
LDL small	1.1 (4)	1.5 (2.3)	0.49

*p-values estimated by non-parametric Mann-Whitney U tests (continuous numeric variables). Data expressed as median and (interquartile range).

However, the RS supplementation could not change the plasma levels of the lipoprotein subfractions (Figure 1).

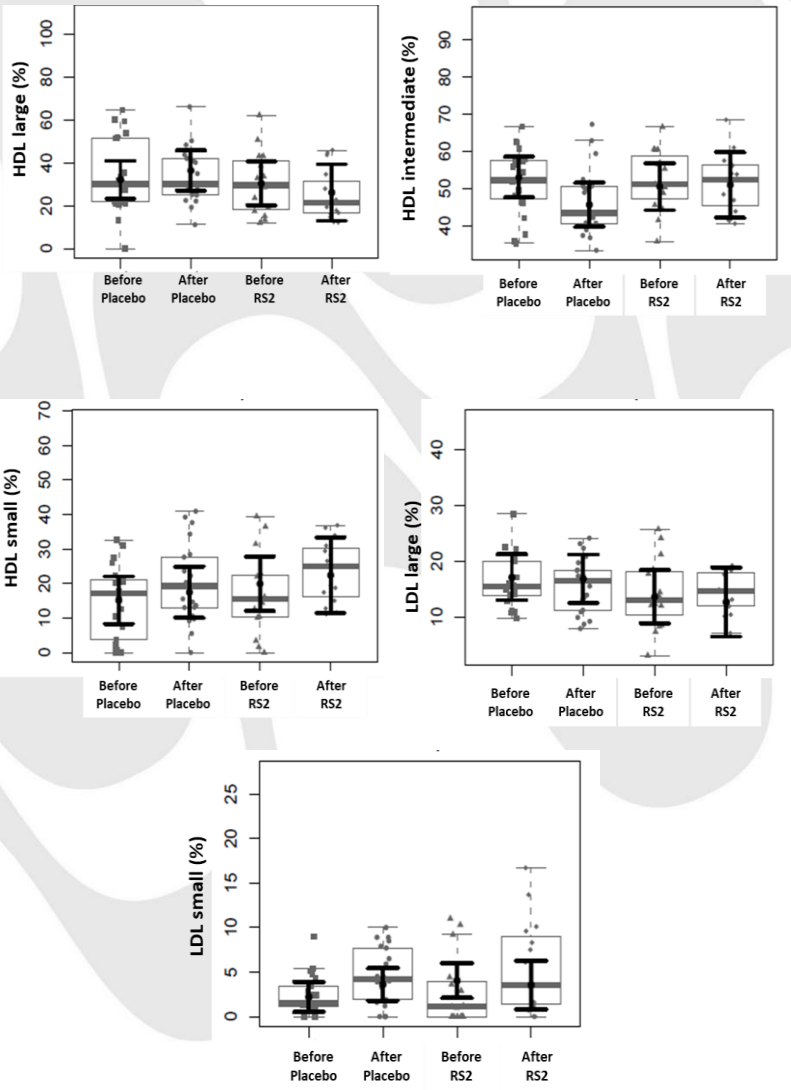

Figure 1. Comparison of HDL and LDL lipoprotein subfractions, before and after 1 month of intervention, between the placebo and RS2 groups.

CONCLUSION

RS supplementation did not change the lipoprotein subfractions significantly, suggesting being ineffective after 4 weeks.

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