

# Influence of normal food intake on the lipid profile of diabetic patients

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## INTRODUCTION

The need to fast for the determination of lipid profile has been discussed in the past years, for several reasons:

- 1) Most of the day time is spent in a postprandial state;
- 2) The lipid concentrations seem to be only slightly affected by a normal meal;
- 3) Both fasting and postprandial testing can predict cardiovascular risk.

## AIM

Determine the influence of normal food intake on the lipid profile of diabetic patients.

## METHODS

- Recruitment of patients: April/2013 - August/2014, Outpatient Diabetes Education Program of Hospital de Santo António
- Analytical evaluation in 2 moments: fasting= $t_0$  and 2h after a standard breakfast= $t_1$  - measurement of total cholesterol (TC), LDL cholesterol (LDL-C), HDL-cholesterol (HDL-C) and triglycerides (TG)
  - Meal composition: bread with ham or butter and coffee with milk (239-248 kcal) – fat 7g, protein 9-12g and carbohydrates 34g
- Excluded thyroid dysfunction in all patients (TSH measurement at  $t_0$ )
- Statistical analysis – SPSS v20.0, descriptive and inferential statistics (paired sample t-test – LDL-C and nonHDL-C, Wilcoxon test – TC, TG and HDL-C);  $p \leq 0.05$  - statistically significant
  - Paired LDL-C samples of patients with TG>400mg/dl and outliers ( $\geq 3$  SD from the mean) were excluded from the analysis

## RESULTS

CHARACTERISTICS OF THE STUDIED POPULATION (n=115)	
Gender (male/female)	49.6% / 50.4%
Age (years) *	57 (13; 40-79)
Duration of diabetes *	8.0 (11; 1-38)
HbA1c (%) *	8.3 (2.7; 4.8-14)
Hypertension	75%
Smoking habits	8.8%
BMI (kg/m <sup>2</sup> ) *	29.0 (5.2; 19.3-44)
Statin therapy	66.3%
Fibrate therapy	17.3%

\* Data expressed as median (IQR, min-max)

	$t_0$	$t_1$	Difference $t_1 - t_0$	p
TC (mg/dl) †	172.0 (45; 93-309)	172.0 (46; 92-286)	0.0 (7; -23 -18)	0.69
TG (mg/dl) †	126.5 (75; 39-363)	134.5 (78; 46-371)	6.0 (23.5; -75 - 76)	<b>0.002</b>
HDL-C (mg/dl) †	46.0 (18; 16-100)	46.0 (19; 17-94)	0.0 (3; -10 - 8)	0.75
LDL-C (mg/dl)*	97.8 (32.1)	96.7 (31.0)	-1.1 (6.1)	0.06
nonHDL-C (mg/dl)*	127.3 (38.2)	127.0 (36.8)	-0.3 (5.3)	0.60

\* Data expressed as mean (SD); † data expressed as median (IQR, min-max)

### LDL-C, ATP III therapeutic goal 100 mg/dl

Fasting (mg/dl)	Postprandial (mg/dl)	
	$\geq 100$	$< 100$
$\geq 100$	49	5
$< 100$	5	53

Agreement between  $t_0$  and  $t_1$  = 91.1% (102/112)

### nonHDL-C, ATP III therapeutic goal 130 mg/dl

Fasting (mg/dl)	Postprandial (mg/dl)	
	$\geq 130$	$< 130$
$\geq 130$	47	3
$< 130$	3	62

Agreement between  $t_0$  and  $t_1$  = 94.8% (109/115)

### LDL-C, ATP III therapeutic goal 70 mg/dl

Fasting (mg/dl)	Postprandial (mg/dl)	
	$\geq 70$	$< 70$
$\geq 70$	88	3
$< 70$	3	18

Agreement between  $t_0$  and  $t_1$  = 97.3% (109/112)

### nonHDL-C, ATP III therapeutic goal 100 mg/dl

Fasting (mg/dl)	Postprandial (mg/dl)	
	$\geq 100$	$< 100$
$\geq 100$	85	0
$< 100$	3	27

Agreement between  $t_0$  and  $t_1$  = 97,4% (112/115)

## CONCLUSIONS

The data presented question the need to fast for the determination of lipid profile. Further studies are needed to confirm these results and to demonstrate an association of postprandial lipid profile and cardiovascular risk in diabetic population.

## References

Aldasouqi S et al (2014) The traditions and risks of fasting for lipid profiles in patients with diabetes. *Posgrad Med*, 126 (7): 98-107;  
Langsted A et al (2011) Nonfasting lipids, lipoproteins, and apolipoproteins in individuals with and without diabetes. *Clin Chem*, 57(3):482-9.

