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ERRATUM

Mediterranean diet and risk of heart failure: results from the PREDIMED randomized controlled trial. *Eur J Heart Fail* 2017;19:1179–1185. doi: 10.1002/ejhf.750

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Some departures from the individual randomization protocol affecting a small subset of participants in the PREvención con DIeta MEDiterránea (PREDIMED) trial (at most 14%) have recently been reported in the re-publication of the main PREDIMED paper.[1] For this reason, the authors wish to make the following clarifications and corrections to their original PREDIMED sub-study examining the effect of the Mediterranean diets (MedDiets), supplemented with extra-virgin olive oil (EVOO) or nuts, on the risk of heart failure.[2]

In the original sub-study, as reported in detail elsewhere,[1] some participants ($n = 425$, or 5.7% of the total sample) were directly allocated, since they were recruited, to the same arm of the trial as their relatives because a previous member of the same household (usually the spouse) was already randomized in the trial. Also, centre D, one of the 11 recruiting centres ($n = 646$, or 8.7% of the total sample), had allocated a subset of its participants by clusters (clinics), instead of using individual randomization (35 participants from centre D were also second household members).

The authors have re-analysed the effect of the intervention on the incidence of heart failure after adjusting for propensity scores (built with 30 predictors of allocation to each intervention group) and using a robust estimate of the variance to correct for intra-cluster correlation,

Table 2 Incidence of heart failure during the trial period with active intervention (2003–2010) by intervention group

	Mediterranean diet + EVOO ($n = 2527$)	Mediterranean diet + nuts ($n = 2444$)	Control diet ($n = 2432$)	*P*-value	
				Mediterranean diet + EVOO vs. control	Mediterranean diet + nuts vs. control
Cases ($n = 94$)	29	33	32		
Person-years of follow-up	11 737	10 279	9664		
Crude rate/1000 person-years (95% CI)	2.5 (1.7–3.5)	3.2 (2.2–4.5)	3.3 (2.3–4.7)		
Original hazard ratios (95% CI)					
New hazard ratios (95% CI)					
Crude model[*]	0.68 (0.41–1.13)	0.92 (0.56–1.49)	1 (ref.)	0.139	0.725
Crude model[†,a]	**0.63 (0.38–1.04)**	**0.91 (0.55–1.50)**	**1 (ref)**	**0.068**	**0.706**
Age- and sex-adjusted model[*]	0.71 (0.43–1.19)	0.98 (0.60–1.61)	1 (ref.)	0.193	0.943
Age- and sex-adjusted model[†,a]	**0.66 (0.40–1.09)**	**0.99 (0.60–1.63)**	**1 (ref)**	**0.104**	**0.961**
Multivariate adjusted model 1[*,b]	0.77 (0.46–1.28)	1.04 (0.64–1.71)	1 (ref.)	0.312	0.864
Multivariate adjusted model 1[‡,c]	**0.76 (0.46–1.28)**	**1.16 (0.70–1.93)**	**1 (ref)**	**0.303**	**0.559**
Multivariate adjusted model 2[*,d]	0.78 (0.46–1.30)	1.07 (0.65–1.76)	1(ref.)	0.336	0.792
Multivariate adjusted model 2[‡,e]	**0.77 (0.46–1.28)**	**1.18 (0.71–1.95)**	**1 (ref)**	**0.310**	**0.527**
Multivariate adjusted model 3[*,f]	0.74 (0.44–1.24)	1.01 (0.61–1.66)	1(ref.)	0.248	0.981
Multivariate adjusted model 3[‡,g]	**0.73 (0.43–1.24)**	**1.12 (0.67–1.87)**	**1 (ref)**	**0.244**	**0.659**

Table 2 Continued

	Mediterranean diet + EVOO (*n* = 2527)	Mediterranean diet + nuts (*n* = 2444)	Control diet (*n* = 2432)	*P*-value	
				Mediterranean diet + EVOO vs. control	Mediterranean diet + nuts vs. control
Excluding centre D and second members of the same household					
Cases (*n* = 74)	**18**	**29**	**27**		
Person-years of follow-up	**9819**	**8921**	**8536**		
Crude rate/1000 person-years (95% CI)	**1.8 (1.2–2.9)**	**3.3 (2.3–4.7)**	**3.2 (2.2–4.6)**		
Multivariate adjusted model 3[‡g]	**0.66 (0.35-1.25)**	**1.18 (0.68-2.04)**	**1 (ref)**	**0.205**	**0.558**

CI, confidence interval; EVOO, extra-virgin olive oil.
[*]Models were stratified according to centre and history of diabetes and used robust variance estimators.
[†]Models were stratified according to centre and history of diabetes.
[‡]Models were stratified according to centre, sex and education (four categories).
[a]**Models used robust estimate of the variance adjusted for intra-cluster correlation, considering the members of the same household and the participants in the same clinics of centre D as clusters.**
[b]Adjusted for age, sex, education (four categories), smoking (three categories), waist-to-height ratio (continuous), physical activity (METS-min/d), dyspnea symptoms at baseline (three categories) and non-AF arrhythmias at baseline.
[c]Adjusted for age, smoking (three categories), waist-to-height ratio (continuous), physical activity (METS-min/day), dyspnoea symptoms at baseline (three categories), non-atrial fibrillation arrhythmias at baseline and history of diabetes. **Models used robust estimates of the variance adjusted for propensity scores and intra-cluster correlation, considering the members of the same household and the participants in the same clinics of centre D as clusters.**
[d]Adjusted for (b), history of hypertension, history of dyslipidaemia, family history of premature coronary heart disease and baseline prevalence of atrial fibrillation.
[e]Adjusted for (c) and history of hypertension, history of dyslipidaemia, family history of premature coronary heart disease and baseline prevalence of atrial fibrillation. **Models used robust estimates of the variance adjusted for propensity scores and intra-cluster correlation, considering the members of the same household and the participants in the same clinics of centre D as clusters.**
[f]Adjusted for (d) and baseline energy intake (kcal/day).
[g]Adjusted for (e) and baseline energy intake (kcal/day). **Models used robust estimates of the variance adjusted for propensity scores and intra-cluster correlation, considering the members of the same household and the participants in the same clinics of centre D as clusters.**

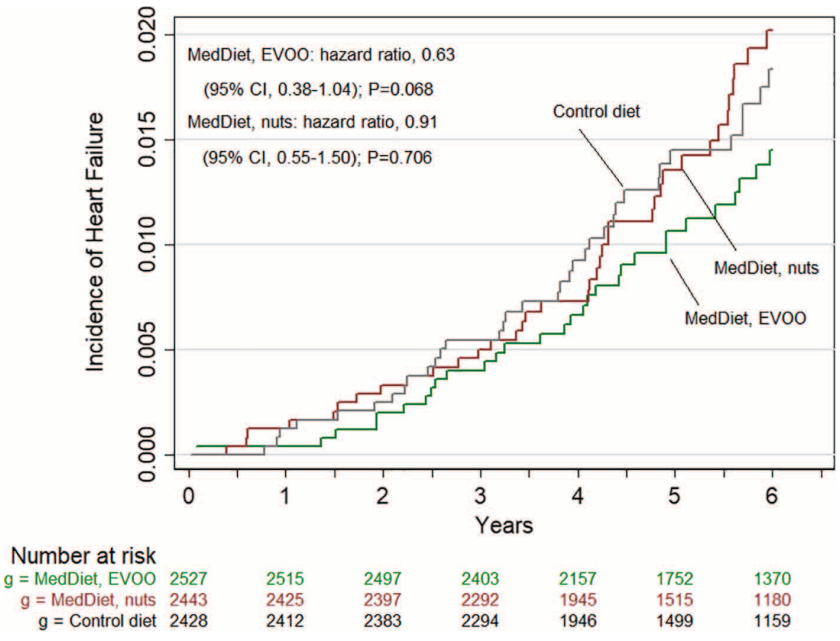

Figure 1 Kaplan–Meier estimates of the incidence of heart failure in the total study population (trial intervention period, 2003–2010). Hazard ratios were stratified by centre and history of diabetes (Cox model **with robust estimates for the variance, adjusted for propensity scores and intra-cluster correlation, considering the members of the same household and the participants in the same clinics of centre D as clusters**). CI, confidence interval; EVOO; extra-virgin olive oil; MedDiet, Mediterranean diet.

considering the members of the same household and the participants in the same clinics of centre D as clusters. The corrected *Table 2* and *Figure 1* (see below; all corrections are marked in bold characters) show the corrected estimates for the outcome, as compared with those reported in the original paper. In consistency with the published paper,[2] the unadjusted hazard ratios (HR) did not indicate significant associations for the MedDiet + EVOO [HR 0.63; 95% confidence interval (CI) 0.38–1.04] and MedDiet + nuts (HR 0.91; 95% CI 0.55–1.50), compared with the control group. Results from the multivariate analyses (*Table 2*) also remained unchanged.

As a sensitivity analysis, we also re-analysed the data after excluding participants from centre D and those who were members of the same household (*Table 2*). The new multivariate adjusted HRs for heart failure were 0.66 (95% CI 0.35–1.25) and 1.18 (95% CI 0.68–2.04) for the MedDiet + EVOO and the MedDiet + nuts groups, respectively, compared with the control group.

Importantly, the key message from the original article does not change and the final conclusions remain the same.

References

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