Bronchodilator Reversibility and Mortality: the PLATINO follow-up study

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Background: Long term effects from bronchodilator (BD) reversibility remain uncertain. Some authors show an association between reversibility and a poor prognosis regarding pulmonary function, but others did not find such an association. The literature regarding reversibility as predictor of mortality is also not conclusive.

Objective: this study was aimed to evaluate reversibility in the PLATINO study and to analyze whether BD reversibility was a predictor of mortality.

Methods: a multicenter population-based study was carried out in 5 centers of Latin America; after a period of 5-6 years the same study was carried out in 2 centers (Uruguay and Chile), being mortality one of the outcomes. BD reversibility: was defined as a change in FEV1 and FVC, post BD, higher than 12% or 200 ml , compared to the pre BD measures; we also ananlysed reversibility as a change in FEV1 and FVC post BD as a continous variable categorized in tertiles. Logistic regression models including reversibility at baseline as the exposure variable were fit to analyze predictors of mortality

Results: the response rate was 86% and 84.7% for Uruguay and Chile, respectively. The total sample was composed by 1512 subjects 45 years and over (669 in Montevideo and 843 in Santiago).

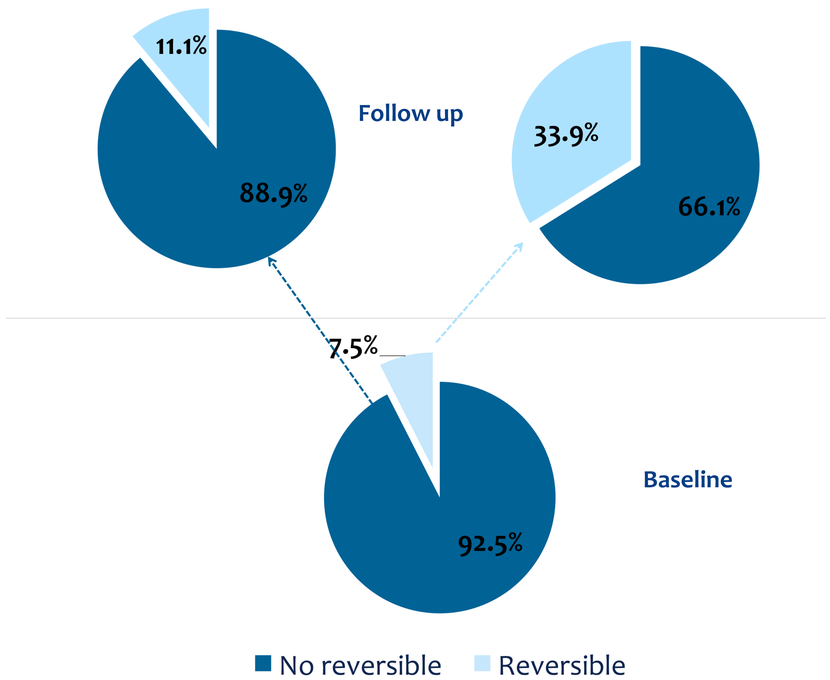

Figure 1 – BD reversibility (FEV1 and FVC, post BD, higher than 12% or 200 ml , compared to the pre BD measures) trajectories from baseline to follow up. Uruguay and Chile. The PLATINO follow up study.

Odds ratio for mortality in 5 years according to spirometric reversibility at baseline (FEV1 and FVC, post BD, higher than 12% or 200 ml , compared to the pre BD measures). Logistic regression. The PLATINO follow up study.

Exposure variables at baseline	Unadjusted		Adjusted 1		Adjusted 2	
	OR (95%CI)	P	OR (95%CI)	P	OR (95%CI)	P
Reversibility (FEV1 and/or FVC)	2.67 (1.50; 4.77)	0.001	2.48 (1.37; 4.48)	0.003	1.40 (0.71; 2.75)	0.320
Reversibility (FEV1 only)	2.50 (1.32; 4.71)	0.005	2.40 (1.27; 4.56)	0.008	1.50 (0.73; 3.08)	0.266
Reversibility (FVC only)	1.81 (0.87; 3.76)	0.108	1.56 (0.73; 3.37)	0.247	0.62 (0.25; 1.50)	0.282

Odds ratio for mortality in 5 years according to reversibility categories of FEV1 or FVC. Logistic regression. The PLATINO follow up study.

	Unadjusted	Adjusted 1	Adjusted 2
Variable	OR (95%CI)	OR (95%CI)	OR (95%CI)
Reversibility in FEV1 (tertiles)	p=0.033	p=0.043	p=0.796
1st – lowest	1.00	1.00	1.00
2nd	0.85 (0.53; 1.35)	0.87 (0.54; 1.40)	0.89 (0.54; 1.47)
3rd – highest	1.68 (1.05; 2.68)	1.65 (1.02; 2.66)	1.06 (0.64; 1.76)
Reversibility in FVC (tertiles)	p<0.001	P=0.003	p=0.331
1st – lowest	1.00	1.00	1.00
2nd	1.03 (0.64; 1.65)	1.06 (0.66; 1.69)	1.09 (0.67; 1.77)
3rd – highest	2.15 (1.42; 3.25)	1.95 (1.25; 3.05)	1.28 (0.77; 2.10)

Adjusted 1: Adjustment for sex, height, age at baseline, skin colour, education and smoking (pack-years) and site.
Adjusted 2: Adjustment for sex, height, age at baseline, skin colour, education, smoking (pack-years), site and post-BD FEV1 at baseline.

Discussion – based on our findings it seems that reversibility does not predict mortality in a population based sample followed in a 5-6 years period, mainly when we take into account previous lung function.
Lung function per se, and not reversibility, might be a key determinant of survival.

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