

INTRODUCTION: Balance disorders and falls are common in the geriatric population and have multifactorial etiology. **AIM:** The present study investigates whether the levels of vitamins D3 and B12 as well as drugs with anticholinergic action are related to balance, fear of falls and falls, in the effort of a comprehensive evaluation of falls in the elderly. **METHODS:** The level of vitamin D3 and vitamin B12 were evaluated in 96 patients of both sexes and age ≥ 65 , with and without fractures, from January 2018 to December 2019 during their first visit in our clinic. The number of falls of the last year was also recorded and the Anticholinergic-Cognitive-Burden score (ACBscore) was calculated. Balance was evaluated with the Mini-Balance-Evaluation-Systems-Test (Mini-BESTest) and the fear of falls with the Falls Self-Efficacy Scale (FES-I).

RESULTS: The Linear Bivariate Correlation showed no statistically significant relationship between level of vitamin B12, MiniBest and FES-I values with the number of falls (tab.1). Statistically negative correlation was found between level of vitamin D3 and the number of falls ($r_s(93) = -0.274, p = 0.008 < 0.05$) (tab.2). Multiple Linear Regression analysis, with the Enter method, showed that from the factors under study, vitamin D3 can predict ($p = 0.028 < 0.05$) with statistical significance, the number of falls (tab.3). FES-I is related negatively to the Mini-Best ($p < 0.000$) and positively to falls ($p < 0.03$), while it was not related to the Vit.D3 ($p < 0.297$), Vit.B12 ($p < 0.371$) and marginally to the ACBscore ($p < 0.052$) (tab4)

DISCUSSION: The study confirms the literature data, which correlates falls with higher FES-I, and with lower Mini-Best values. Vitamin D3, while associated with falls, does not appear to affect balance (Mini Best) or fear of falls (FES-I). Vit.B12 levels do not appear to affect balance and falls. The use of anticholinergic drugs (ACBscore) is marginally not related to the fear of falls, but that can be attributed into the limits of statistical error.

CONCLUSIONS: In the present study, vitamin D3, balance and fear of falls appear to be the main factors responsible for falls and therefore should be the main areas of intervention at the prevention of falls.

Tab.1 Vit. B12 Correlation Controls

		Vit-B12	
Spearman's rho	MINI BEST	Correlation Coefficient	.158
		Sig. (2-tailed)	.134
		N	91
	FES-I	Correlation Coefficient	-.094
		Sig. (2-tailed)	.391
		N	85
	N° of Falls	Correlation Coefficient	.014
		Sig. (2-tailed)	.891
		N	95
	ACB score	Correlation Coefficient	.079
		Sig. (2-tailed)	.443
		N	96

Tab.2 Vit. D3 Correlation Controls

		Vit-D3	
Spearman's rho	MINI BEST	Correlation Coefficient	.122
		Sig. (2-tailed)	.253
		N	89
	FES-I	Correlation Coefficient	-.121
		Sig. (2-tailed)	.277
		N	83
	N° of Falls	Correlation Coefficient	-.274
		Sig. (2-tailed)	.008
		N	93
	ACB score	Correlation Coefficient	.148
		Sig. (2-tailed)	.155
		N	94

Tab.4 FES-I Correlation Controls

		FES-I	
Spearman's rho	MINI BEST	Correlation Coefficient	-.496**
		Sig. (2-tailed)	.000
		N	83
	ACB score	Correlation Coefficient	.211
		Sig. (2-tailed)	.052
		N	85
	Vit-B12	Correlation Coefficient	-.094
		Sig. (2-tailed)	.391
		N	85
	Vit-D3	Correlation Coefficient	-.121
		Sig. (2-tailed)	.277
		N	83
	N° of Falls	Correlation Coefficient	.236*
		Sig. (2-tailed)	.030
		N	85

Tab.3

Model	Coefficients a				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
1 (Constant)	1.530	.501		3.056	.003	
Vit-B12	.001	.001	.076	.729	.468	
Vit-D3	-.032	.014	-.233	-2.234	.028	
ACB score	.038	.106	.038	.363	.718	

a. Dependent Variable: N° of Falls