

IS FUNCTIONAL IMPROVEMENT THE SAME IN STROKE PATIENTS TREATED WITH BOTULINUM TOXIN IN UPPER LIMB

ONLY VS A TYPICAL POSTSTROKE INPATIENT POPULATION IN A NEUROREHABILITATION SERVICE?



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INTRODUCTION

Stroke is one of the leading causes of mortality and disability in all industrialized countries. After completing rehabilitation almost 50% of stroke survivors remain at least partially dependent. Post-stroke spasticity can appear in an early phase and may impose a worse functional outcome, as it can cause symptoms as pain and involuntary movements, increase care and hygiene difficulties and limit functionality in activities of daily living and mobility.

Upper limb botulinum toxin injections is a worldwide accepted treatment for focal post-stroke spasticity and is routinely applied in our inpatients and outpatient spasticity clinic.

OBJECTIVES

The aim of this study was to evaluate if stroke patients treated with botulinum toxin in the upper limb only (UL-BoNTA) during an inpatient rehabilitation program (IRP) had the same functional outcome as the total typical stroke population in our service.

MATERIAL AND METHODS

Post-stroke patients treated in an inpatient rehabilitation program were studied in 2 groups. In the UL-BoNTA group there were 41 patients treated with BoNTA in the upper limb in any of their inpatient interventions between 2011 and 2016. In the control group (CG) there were 114 stroke patients in their first IRP who were treated in 2014. Data were collected in a specific form, at admission and at discharge. Stroke was classified by etiology, localization, and impairment. Functionality was assessed with the functional independence measure (FIM). The correlations between these characteristics were investigated.



RESULTS

DEMOGRAPHICS

Patients' characteristics are summarized in table 1.

The control group and the UL-BoNTA group were quite homogenous. The mean age was 64 years in both groups, female gender was slightly more frequent in both groups, with 56,1% in the CG and 51,2% in the UL-BoNTA group. Ischemic stroke was the most frequent etiology, corresponding to 73% and 78% in the control and in the UL-BoNTA groups respectively. Median length of stay (IRP) was 69 days for both groups.

The most frequently affected hemisphere in the CG was the right one (47%) and in the UL-BoNTA group was the left one (54%; $P=0.02$). The patients in the CG were in an earlier phase post-stroke, with a median stroke to admission time of 59 vs 107 days for the ones in the UL-BoNTA group (excluding 8 patients with stroke-to-admission interval higher than 2 years in the UL-BoNTA group).

Among the 114 patients in the CG, 1 had upper limb, 8 had lower limb, and 13 had upper + lower limb BoNTA injections according to current practice.

The mean FIM score at admission and at discharge for CG and UL-BoNTA groups were similar (66 and 73; 84 and 91, respectively; $P=0.59$). The mean total FIM improvement was 18 for both ($P<0.05$).

	Control group	UL-BoNTA
	N=114	N=41
Mean age (years)	63,8 (SD13,3)	64,2 (SD12,6)
Gender		
Male	43,9%	48,8%
Female	56,1%	51,2%
Etiology		
Ischemic	0,7	0,8
Length of stay	69 days	69 days
Stroke localization		
Right hemisphere	46,5%	36,6%*
Left hemisphere	39,5%	53,7%*
Subhemispheric	13,0%	4,9%*
Mean stroke-to-admission interval	59 days	107 days
BoNTA injections	22 patients	41 patients
Upper limb	1	
Lower limb	8	41
Upper+Lower limbs	13	
Mean admission FIM	66	73

FIG 1: Patients characteristic's for both groups. * $p=0,02$ for stroke localization. In all others the differences are not significant.

CONCLUSIONS

In our group, the expert selection of cases for UL-BoNTA injection in post-acute and chronic stroke patients made it possible for the patients to overcome the spasticity constraints and allowed them to have symptom control and functional improvement, translated by FIM gains, that was as good as the one achieved by a typical post stroke inpatient population of the department, including those patients treated earlier post stroke.

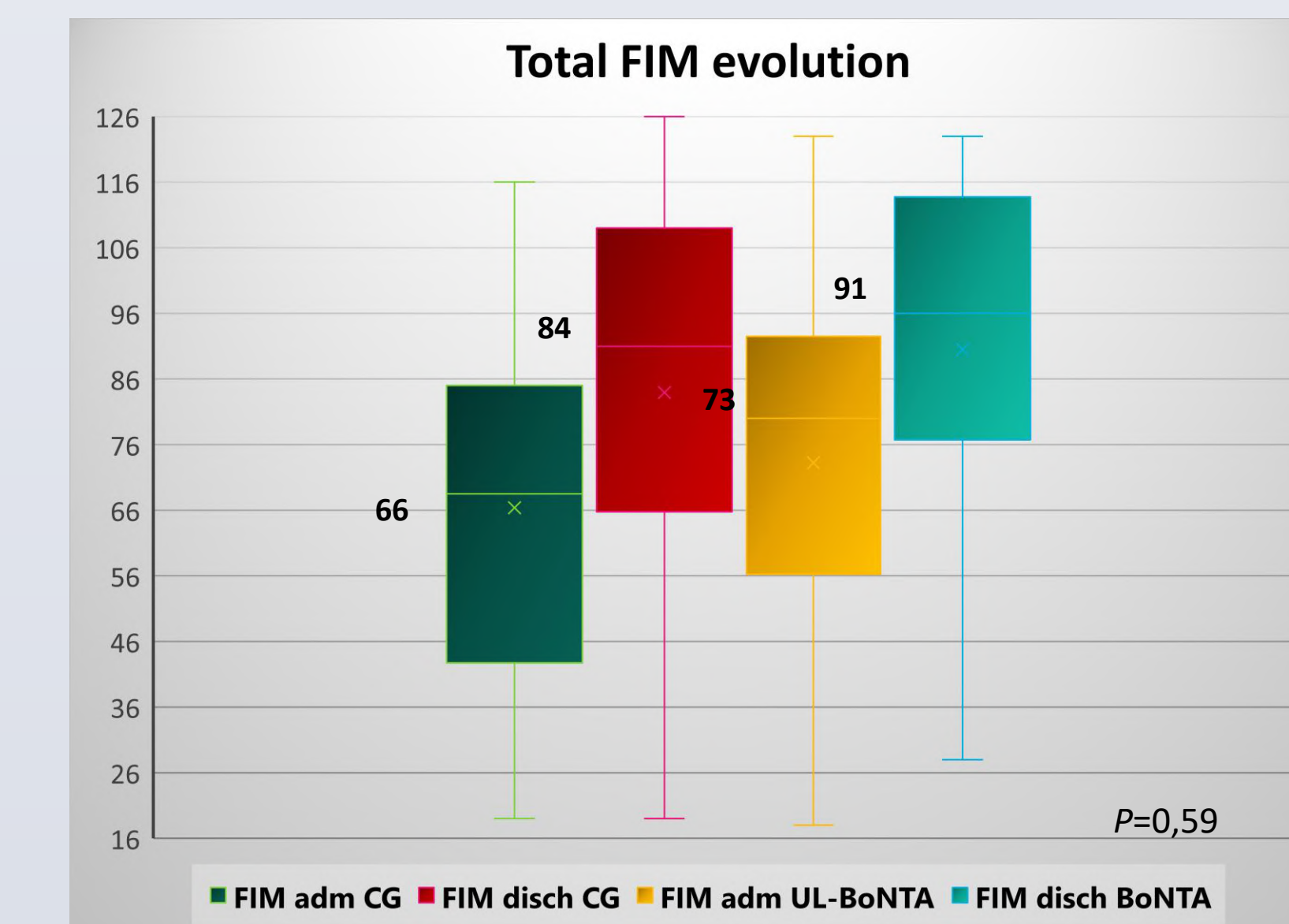


FIG 3: Mean total FIM at admission and at discharge for both groups.

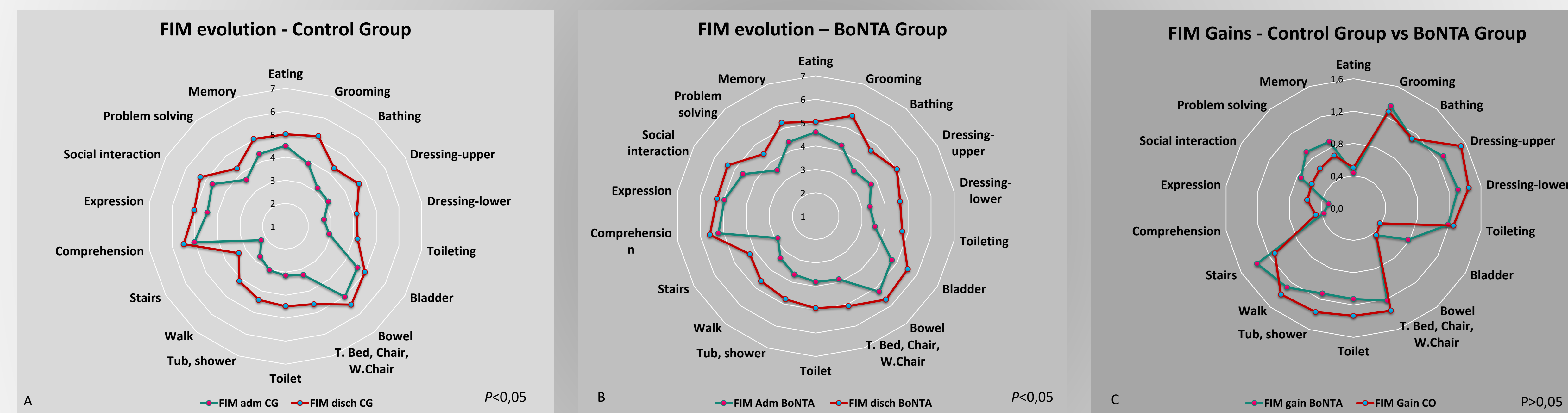


FIG 2.A: Mean FIM subscores evolution for the CG; FIG 2.B: Mean FIM subscores evolution for the UL-BoNTA group; FIG 2.C: Mean FIM subscores gains for CG versus UL-BoNTA group, differences not significant.



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