OUTCOME OF A MULTILEVEL BoNTA TREATMENT, WHEN INCLUDING SHOULDER MUSCLES, USING PATIENT-CENTERED GOAL ATTAINMENT

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INTRODUCTION

Botulinum toxin A (BoNTA) is an effective treatment for upper limb spasticity (ULS) after stroke. Few studies concern shoulder muscle (SM) injections to treat ULS, and even less, evaluate outcomes using patient-centred, real-life based functional measurements. 1,2

OBJECTIVES

We aim to evaluate patient-centred goal achievement, in post-stroke ULS management with BoNTA, including SM injections, using the Goal Attainment Scaling (GAS).

MATERIALS AND METHODS

This is an observational cross-sectional study. Data were collected, prospectively, from specific clinical forms of outpatients treated in 2014 and all their treatments (2001-2016).

We collected the following: age at stroke; diagnosis; interval stroke to first BoNTA treatment; follow-up time; targeted goal areas; muscles injected versus goals; goal achievement as by GAS-score.

Data was collected and treated in Excel®.

RESULTS

SAMPLE DEMOGRAPHICS

Of 117 stroke patients submitted to 1057 BoNTA sessions, 86 (74%) were injected in at least 1 SM.

Mean age was 53 years, and male gender was more affected (58%).

Ischemic stroke was the most frequent (60%) compared to haemorragic (40%).

Most lesions were hemispheric, 50% on the left hemisphere and 42% on the right.

The average time interval between stroke and the first BoNTA application was 0,96 years, and average follow-up was 4.76 years (0.27-13.45).

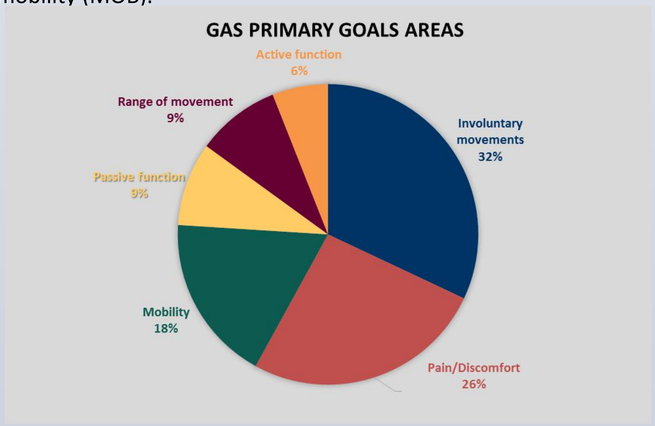
Patients injected in Shoulder Muscles	N=86
Mean age (years)	53.2 (SD13.3)
Gender	
Male	58%
Female	42%
Etiology	
Ischemic	60%
Haemorragic	40%
Stroke localization	
Right hemisphere	42%
Left hemisphere	50%
Infratentorial	4%
Not specified	4%
Average stroke to 1st BoNTA interval	0,96 years
Median follow-up time	4.76 years (0,27-13,45)

Table 1: Demographic characteristics of patients injected in shoulder muscles

BoNTA TREATMENT SESSIONS

Of 1057 BoNTA treatment sessions, 90% included UL, 52% (n=547) included SM and, from these, 60% (n=328) were evaluated with GAS for primary treatment goals.

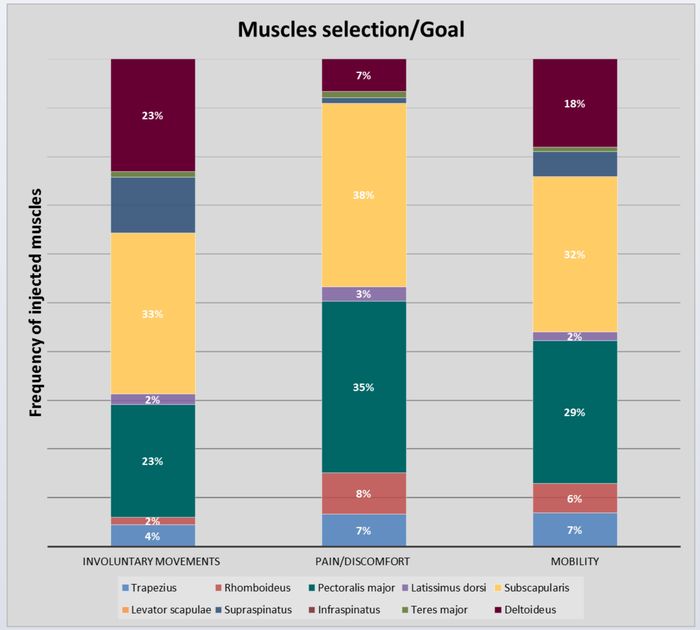
The most frequently targeted goal areas were: 33% involuntary movements (IM)- mostly shoulder associated reactions, 26% pain/discomfort (PD) and 18% mobility (MOB).



Graphic 1: Frequency of GAS primary goal areas chosen to be treated at the 328 BoNTA sessions.

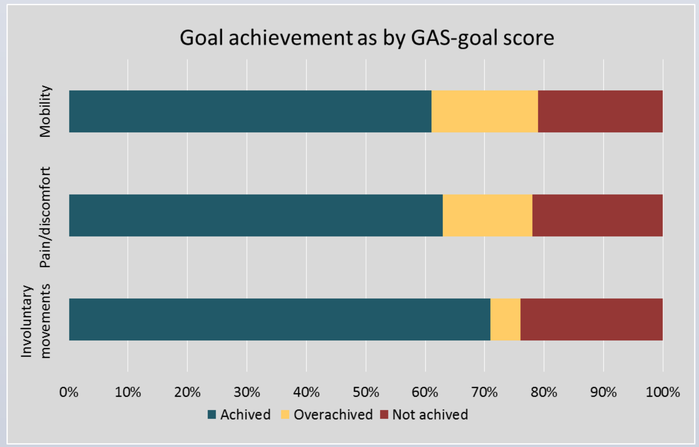
When goals concerned IM, the most injected SM were: subscapularis (33%), deltoideus (23%) and pectoralis major (23%). For MOB related goals, muscles were the same, although in different frequencies (32%, 18%, 29%, respectively).

The most injected muscles to treat PD-related goals were: subscapularis (38%) and pectoralis major (35%).



Graphic 2: Muscles selection/Goal

Regarding primary goals, patients achieved or overachievement was: 76% for IM, 79% for PD and 80% for MOB.



Graphic 3: Goal achievement, according to goal areas.

CONCLUSIONS

In our group of relatively young patients with ULS after stroke, most frequently, the priority areas for treatment were involuntary movements or associated reactions involving SM, shoulder pain/discomfort and ability/safety to transfer/walk.

The most frequently injected muscles were subscapularis and pectoralis major.

BoNTA injections led to goal achievement/overachievement in a large percentage of patients, although goal setting might be undervalued for mobility and pain.

BoNTA has demonstrated a positive effect in controlling symptoms and improving function, as measured by GAS scores.

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