

Ultrasound-guided botulinum toxin-A for Sialorrhea: a 2-year prospective study

CARLO ALBERTO ARTUSI¹, STEFANIA DE MERCANTI¹, MARCO BUSSO², MARCO TINIVELLA³, MARINELLA CLERICO¹, LUCA DURELLI¹, PIERANGELO BARBERO¹

1 Department of Neurology, AOU San Luigi Gonzaga, Orbassano (Turin), Italy 2 Department of Dietologic and Nutrition, AOU San Luigi Gonzaga, Orbassano (Turin), Italy 3 Department of Radiology, AOU San Luigi Gonzaga, Orbassano (Turin), Italy

Objectives: To evaluate sialorrhea reduction, therapeutic effect duration and caregiver satisfaction of ultrasound-guided Botulinum toxin-A (BoNT-A) injections in patients with severe sialorrhea secondary to neurological diseases.

Materials and Methods: Thirtyfour severe adult sialorrhea patients (7 ALS, 5 PD, 8 MS, 8 stroke, 6 AD) were treated with BoNT-A injections in bilateral parotid and submandibular gland under ultrasound-guidance. Seventy-five IU were injected in each parotid gland (4-6 sites) and 50 IU in each submandibular gland (2 sites). Questionnaire-based scoring for drooling severity (score 1-5) and frequency (score 1-4), caregiver self-evaluation of the symptom improvement with a visual-analogue scale, and adverse events were collected before treatment and at 1 and 3 months after every administration. Thirtythree patients received 3 therapy sessions.

SIDE EFFECTS	FIRST INJECTION - NUMBER OF EVENTS	SECOND INJECTION - NUMBER OF EVENTS	THIRD INJECTION - NUMBER OF EVENTS	TOTAL EVENTS
LOCAL PAIN	5/34	6/34	5/33	16
DRY MOUTH	3/34	4/34	3/33	10
LOCAL BLEEDING	1/34	0/34	0/33	1
FACIAL PALSY	0/34	0/34	0/33	0
CHEWING WEAKNESS	0/34	0/34	0/33	0

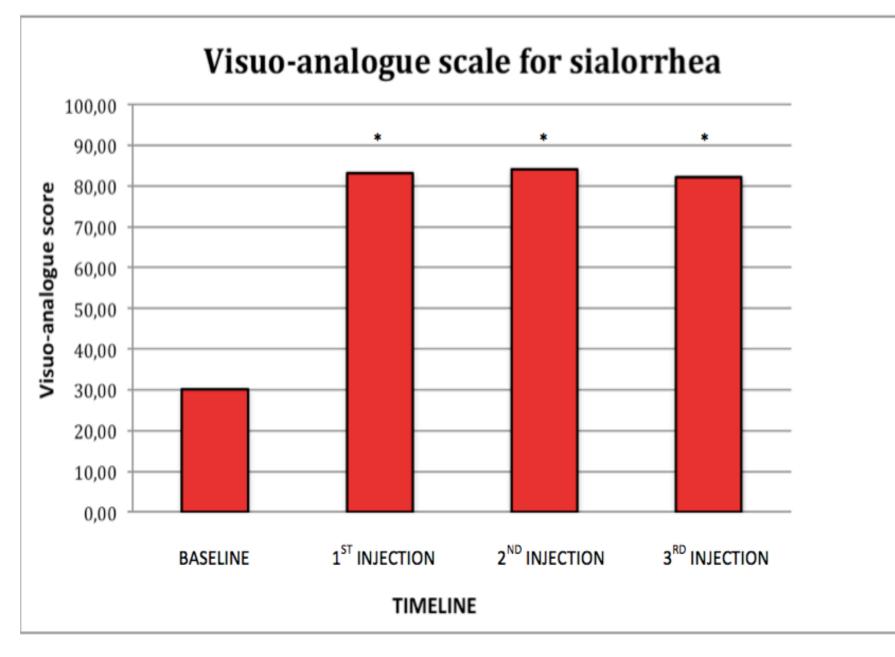
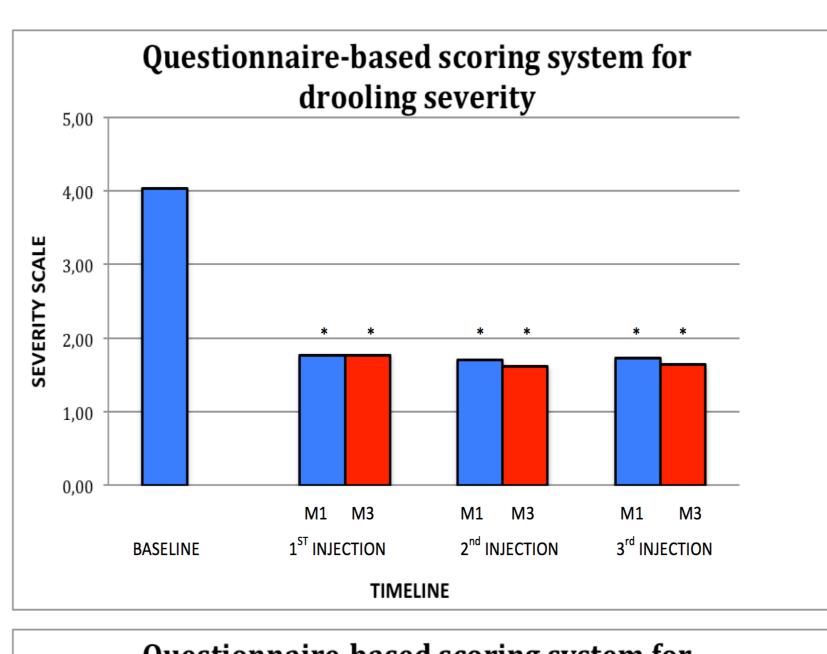
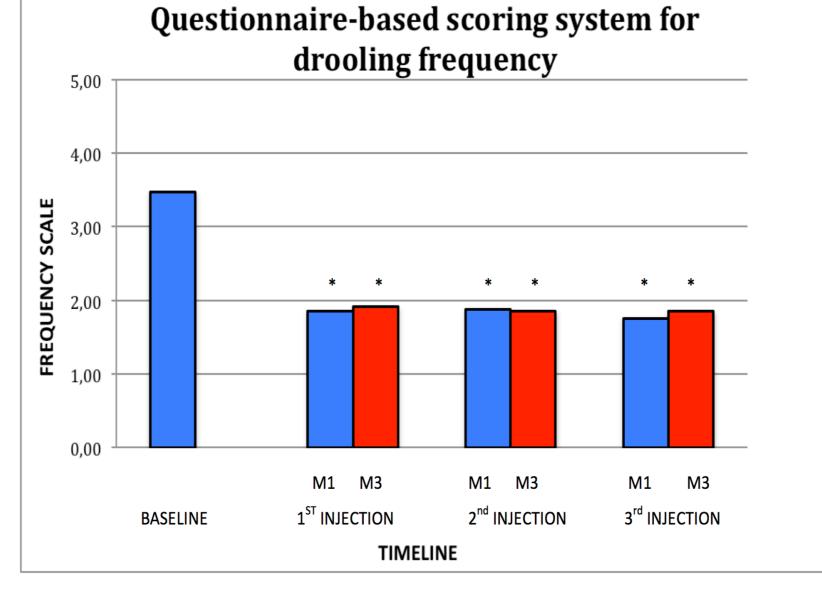


FIGURE 1: VISUO-ANALOGUE SCALE FOR SIALORRHEA SCORES

* significant difference between baseline and post-treatment score





Results: We observed significant decrease from baseline in mean number of daily aspirations and significant improvement in questionnaire-based scoring for drooling severity and frequency and in visualanalogue scale following ultrasound-guided BoNT-A injections (p<0.001 vs. baseline for all comparisons). No major treatment-related adverse events (AEs) and a low incidence of minor AEs were reported: 16 cases of local pain, 10 cases of dry mouth, 1 case of local bleeding, no case of facial palsy or chewing muscle weakness. Sialorrhea improvement occurred about 10 days after the treatment and the mean duration of improvement was about 5.5 months after each therapy course.

FIGURE 2: DROOLING SEVERITY AND FREQUENCY SCORES

* significant difference between baseline and post-treatment score

TABLE 1: ADVERSE EVENTS

* significant difference between baseline and post-treatment score

Discussion: BoNT-A is an emerging treatment option for sialorrhea. There are limited studies investigating BoNT-A in large and diverse neurological populations. Ultrasound-guided BoNT-A injection for sialorrhea secondary to neurological disorders demonstrated sustained efficacy, prevention of major AEs and low rate of minor AEs.

Conclusions: This study confirms the long-lasting efficacy and safety of ultrasound-guided BoNT-A injections for sialorrhea, regardless the causative neurological disorder.