



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

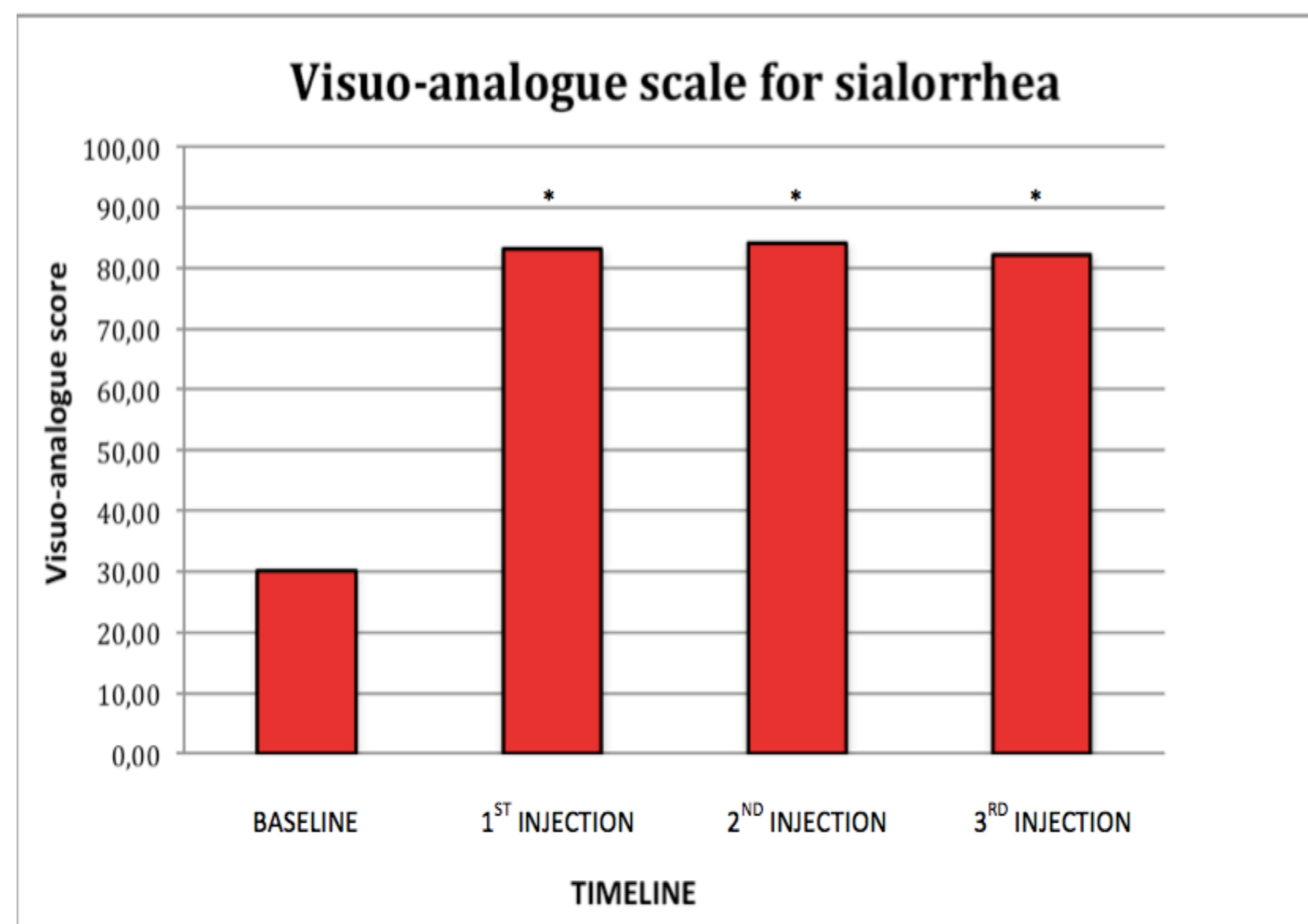
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**Objectives:** To evaluate sialorrhea reduction, therapeutic effect duration and caregiver satisfaction of ultrasound-guided Botulinum toxin-A (BoNT-A) injections in patients with severe sialorrhea secondary to neurological diseases.

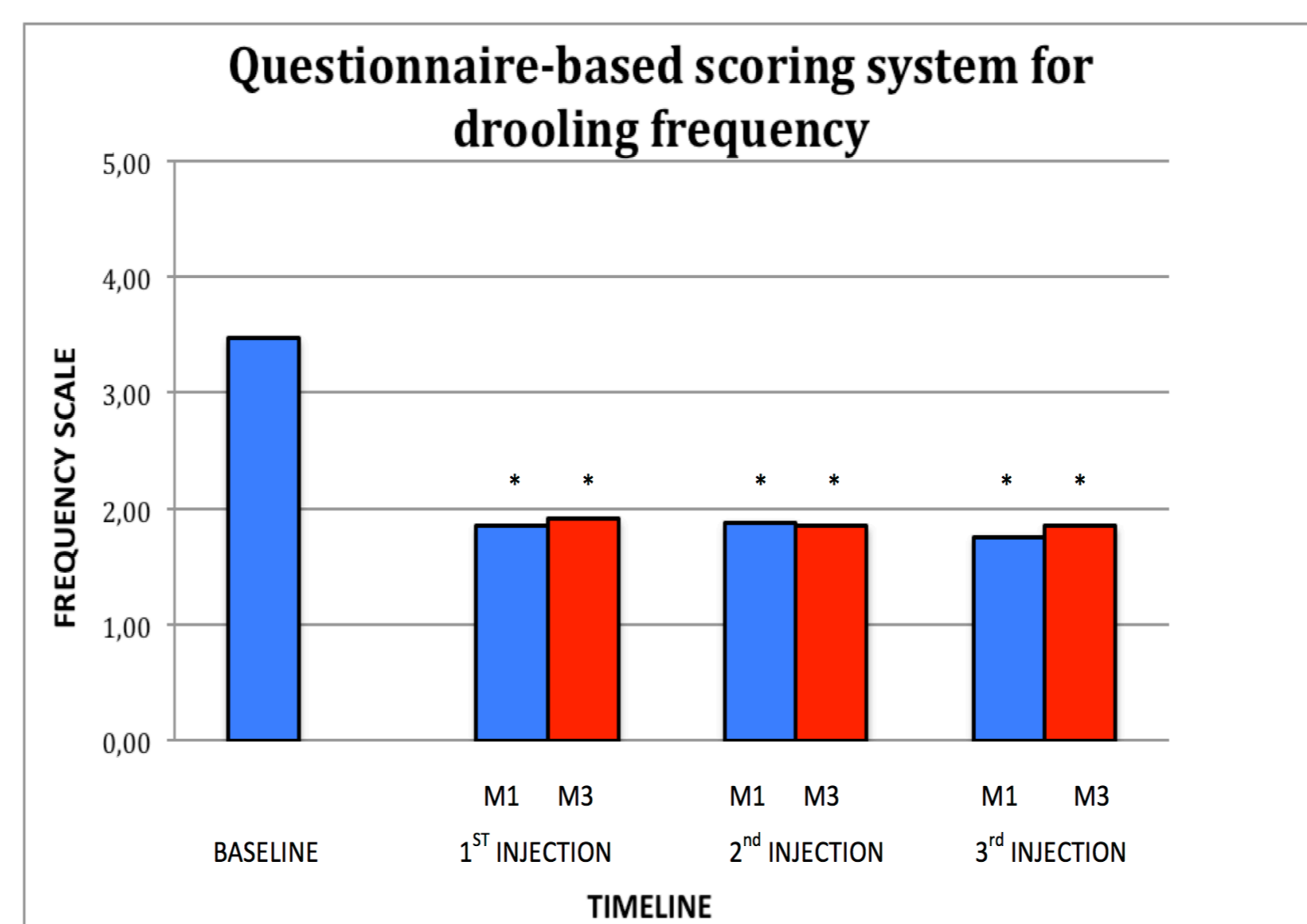
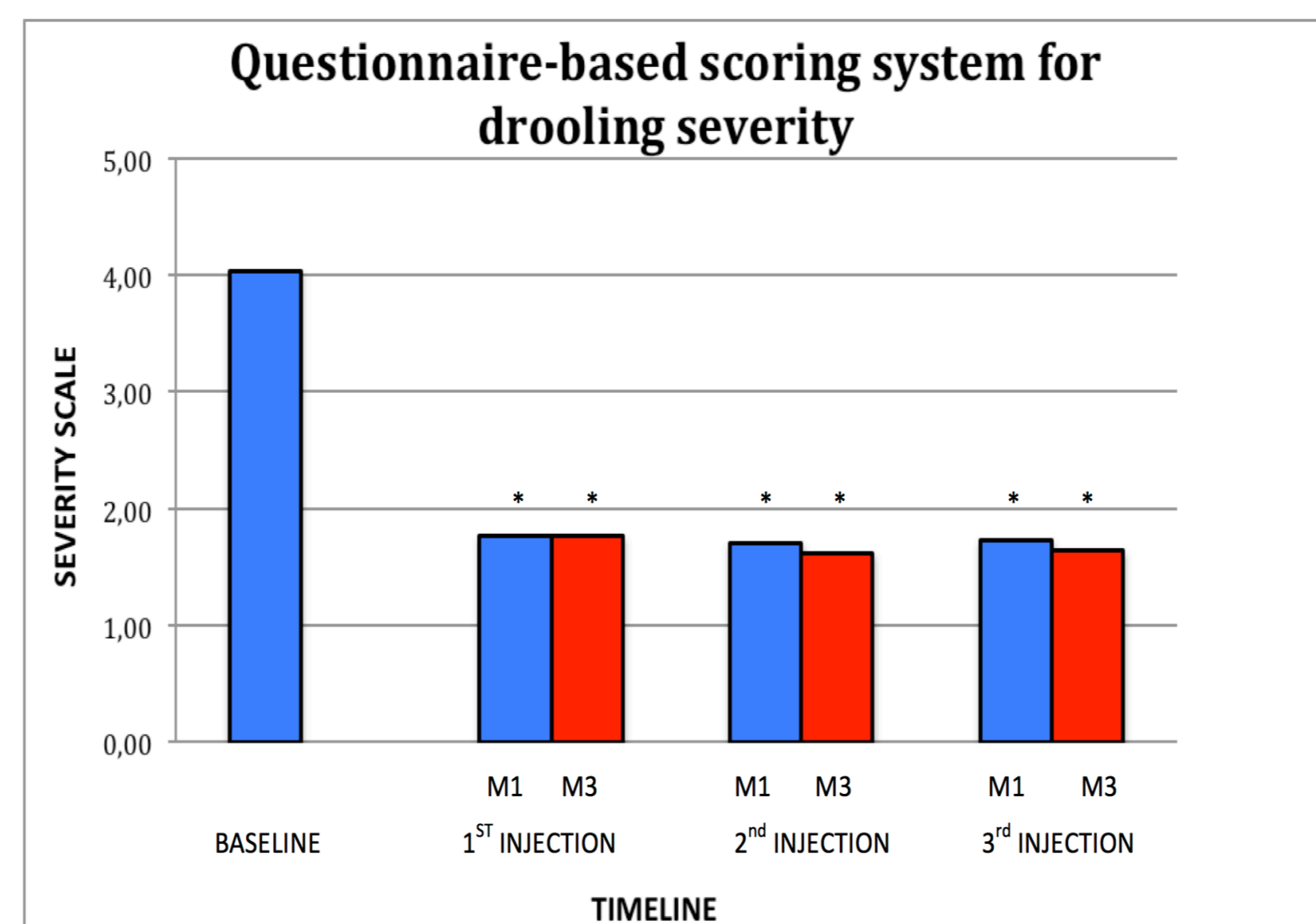
**Materials and Methods:** Thirty-four severe adult sialorrhea patients (7 ALS, 5 PD, 8 MS, 8 stroke, 6 AD) were treated with BoNT-A injections in bilateral parotid and submandibular gland under ultrasound-guidance. Seventy-five IU were injected in each parotid gland (4-6 sites) and 50 IU in each submandibular 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. Thirty-three 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



**FIGURE 2: DROOLING SEVERITY AND FREQUENCY SCORES**

\* 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.