After the age of 4 years, drooling becomes pathological and impacts the quality of life of children with cerebral palsy (CP). Treatment includes rehabilitation, medication, botulinum toxin (Btx) injection and surgery. These therapies seem to be effective, but it remains a lack of evidence of effectiveness. There is also no consensus about the assessment and timing of treatment.

Through literature, efficacy results of Btx are encouraging and its use is safe; but the overall level of evidence of the studies remains low. Based on a survey of French clinical practices in the management of sialorrhea, aims were to characterize affected children, to describe care pathways, assessment and treatment.

Methods

Transversal, observational, descriptive survey of the practices and opinion, carried out nationally across France from March to September 2013. Questionnaires with 100 questions were divided into 5 categories:
1. The professional and his/her practice
2. Description and care pathways of the children with CP and drooling
3. Assessment of drooling
4. Treatments of drooling
5. Opinion about existing treatments and potential improvements.
421 questionnaires were sent to professionals who potentially managed children with CP. Descriptive analysis of data, by numbers and percentages and quantitative variables by means (standard deviations) and medians (range or interquartile internal) of categorical variables.

Results

1) Characteristics of the professionals:
Response rates: 36%, 52% questionnaires analyzed; 48% of the professionals replied that they were not concerned.
Specialties: 48% PMR Medical Doctors, 25% paediatricians/neuropediatricians; 12% ENT.

2) Description of the children with CP and their care pathways:
For professionals, less than 25% of the children are concerned by drooling problems. Less than 25% are treated for drooling problems. 75% are evaluated, most often, by the speech and language therapists. A lack of time and knowledge would limit assessments. And yet 93% of professionals propose a treatment.

3) Assessments of drooling:
- Global evaluation (trunk posture and muscle tone) and orofacial examination are systematic for 66% of children.
- Most often, subjective assessment (73% of evaluations by family/carees). Less often, objective evaluation, with the number of bibs used per day (48%).

4) Treatments:

- a) Frequency of use of treatments (n=87)
- b) Effectiveness of treatments

Scopolamine is the most employed medication.
Botulinum toxin is the most effective medication for responders.
BOTOX® is the most used toxin.

5) The ways to improve:
Over 90% of professionals considered that it was necessary to improve treatments. The 3 most reported actions to improve treatment were training to assessment, rehabilitation and botulinum toxin injection.

Discussion and conclusion

For French professionals, drooling problems occur for 25% of CP children. This frequency is probably underestimated, considering the figures reported in the literature. It can be partly due to the lack of knowledge regarding assessment tools and available treatments.

Concerning assessment tools, the Dripping Impact Scale appears to be an interesting tool but not used frequently by professionals. A linguistic validation in French has been realised and a study of reliability is under way, with encouraging preliminary results.

As the survey highlighted, the evaluation must be conducted by a multidisciplinary team, with PMR Doctors and ENT doctors and speech therapists.

The first treatment is orofacial rehabilitation with speech therapist. The daily role of carers for this treatment is important. Anticholinergic medication, principally Scopolamine patches, was used as a second-line treatment, followed by Btx injection in the submandibular glands, despite the fact that scopolamine was considered to be less effective than Btx and to have more side effects requiring cessation of its use.

Concerning the injection protocol, opinions for the isolated or associated injection of submandibular and parotid glands vary in the literature. The dose is also still being debated as the french median is in line with what was reported in the literature. For several authors, beyond 25 units in a gland the number of severe side effects increased. In the literature, dilutions varied from 1 to 4 mL of saline solution for the same BOTOX® dose. According to the study, the maximum volume to be used to avoid diffusion and thus side effects was set at 1.5 mL. Concerning the identification, using ultrasound seems unavoidable in light of its easy use, comfort for the child and the safety of the gesture, and thus increased benefit for the patient.

In France, Btx is not widely used for drooling, however professionals consider that it is necessary to improve treatment and to reduce side effects compared to medications.

Protocol validation studies are needed and the place of Btx in the therapeutic arm of sialorrhea management needs to be examined.

References