Pediatric Complex Care

Sialorrhea Clinic Checklist

Name:
Age:
ID:

Past Medical History

1. ***
2. ***

Medications

1. ***
2. ***

Feeding and hydration history

Feeding/fluid intake:

Voiding:

Sialorrhea

- **Type?** ☐ Anterior ☐ Posterior ☐ Both
- **Contributing factors:**
  - GERD controlled? ☐ Yes ☐ No
  - Sialorrhea increases after feeding? ☐ Yes ☐ No
  - Tooth eruption? ☐ Yes ☐ No
  - Dental carries? ☐ Yes ☐ No
  - Dental malocclusion? ☐ Yes ☐ No
  - Any medications contributing to sialorrhea? ☐ Yes ☐ No
  - Co-existing epilepsy? ☐ Yes ☐ No
  - Poor or no speech? ☐ Yes ☐ No
  - Intellectual disability? ☐ Yes ☐ No
  - Head/body positioning contributing to sialorrhea? ☐ Yes ☐ No
- **How severe?** _____
- **How frequent?** _____

Severity	Frequency
1 Dry – never drools	1 Never drools
2 Mild – only wet on the lips	2 Occasionally drools
3 Moderate – wet on the lips and chin	3 Frequently drools
4 Severe – drools to the extent that clothing becomes damp	4 Constant drooling
5 Profuse – clothing, hands, tray and objects are wet	

The drooling rankings from both scales are added together to make a combined drooling score

- **Secretions consistency?** ☐ Thin ☐ Thick ☐ Very thick
- **Complications:**

  ☐ Skin irritation ☐ Unpleasant odder ☐ Caregiver and teacher stress ☐ Social impact
  ☐ Damage to clothing/bibs/communication devices ☐ Interference with speech
  ☐ Recurrent/chronic respiratory symptoms ☐ Aspiration pneumonia ☐ Frequent suctioning/injury
  ☐ Dehydration

Management:

Current management:

(1) Non-pharmacological management:

☐ Use of bibs/towels/clothing (dip, not wipe) PRN

☐ Use of suctioning PRN (gentile) (specify): _____

☐ Oro-motor therapy (specify): _____

☐ Behavioral therapy (specify): _____

☐ Intra-oral appliances (specify): _____

☐ Adjust hydration status (specify): _____

(2) Pharmacological management:

☐ Atropine PO drops (specify dose): _____

☐ Glycopyrrolate (specify dose): _____

☐ Others (specify): _____

Side effects:

- Any? _____

(3) Botox injections:

- How frequent? _____
- Last injection? _____
- Effects? _____
- Side effects? _____

(4) Surgical management:

- Surgical intervention? _____
- Date? _____
- Effects? _____
- Complications? _____

Management recommendations:

(1) Non-pharmacological management:

☐ Optimize contributing factors (specify): _____

☐ Use of bibs/towels/clothing (dip, not wipe) PRN

☐ Use of suctioning PRN (gentile) (specify): _____

☐ Oro-motor therapy (specify): _____

☐ Behavioral therapy (specify): _____

☐ Intra-oral appliances (specify): _____

☐ Adjust hydration status (specify): _____

(2) Pharmacological management:

☐ Atropine PO drops (specify dose): _____

☐ Glycopyrrolate (specify dose): _____

☐ Others (specify): _____

Contraindications:

☐ Glaucoma
☐ Tachyarrhythmias
☐ Paralytic ileus/GI obstruction
☐ Urinary tract obstruction (check RFT and renal U/S before use, if available)
☐ Hyperthyroidism
☐ Pregnancy
☐ Myasthenia graves

Side effects:

☐ Side effects reviewed

(3) Botox injections:

☐ Will make referral to ENT

☐ Will make referral to IR

☐ Procedure explained
☐ Timeline explained
☐ Complications explained

(4) Surgical management:

☐ Patient will not feed orally and will make referral to ENT for: _____

☐ Procedure explained
☐ Timeline explained
☐ Complications explained

Management of sialorrhea

Indication

If no/minimal complications → no treatment indicated

Conservative

1) Assess/correct factors that may contribute to sialorrhea: **Positioning, medications, GERD, dental issues**
2) Bibs (dap NOT wipe), suctioning (gentile), oro-motor therapy (by OT/SLP), behavioral therapy (by psychologist), intra-oral appliances (be dentist), optimizing TF (lower acceptable TFI)

Meds

Medication MoA

Reduction of saliva production (blocks parasympathetic innervation to glands)

Medication options

Atropine (PO drops)

- 1% ophthalmic solution (pharmacy cab make 0.25% & 0.5% solutions)
- DOSE: 1-2 drops given sublingually q4-6hr (can be given less frequently, i.e., OD, BID or TID)
- Route: Sublingual (make sure to dry mouth/suction before use)
- Wash hands after use (causes dilated pupils if in contact with eyes)
- 1% atropine covered by OHIP
- Inform parents that the container says "eye drops"

Glycopyrrolate (PO/GT/JT)

- DOSE: Initial dose 0.02 mg/Kg/DOSE TID, titrate up every 5-7 days to 0.1 mg/Kg/DOSE TID, max 3 mg TID
- Route: PO
- Does not cross BBB = less CNS toxicity and side effects
- May increase gastric acid secretion
- Specific contraindication: Glaucoma
- Can compound using the IV formulation
- Expensive/not covered by OHIP
- To discontinue, gradually wean over 2 weeks to prevent withdrawal symptoms

Others:

- **Trihexyphenidyl (Artane):**
  - For children >3 Y/O
  - Treats both sialorrhea and spasticity/dystonia
  - DOSE: Initial dose 1 mg BID x7 days, titrate up every 3 days by 1-2 mg/day, if daily dose >10 mg → div TID-QID (not BID), target dose (6-40 mg/day), max daily dose (100 mg/day)
  - Taper gradually to D/C
- **Ipratropium bromide** (MDI) – not widely used in pediatrics for this indication

Side effects & contraindications

Side effects:

1) Constipation
2) Urinary retention
3) Tachycardia (more with atropine)
4) Hypertension
5) Vomiting
6) Behavioral changes/irritability
7) Over-drying of secretions
8) Facial flushing/impaired ability to sweat → risk of hyperthermia in hot environments
9) Sensitization
10) Seizure control
11) Mydriasis and cycloplegia
12) Sedation

Contraindications:

1) Glaucoma
2) Tachyarrhythmias
3) Paralytic ileus/GI obstruction
4) Urinary tract obstruction (check RFT and renal U/S before use, if available)
5) Hyperthyroidism
6) Pregnancy
7) Myasthenia graves

Comparative Effects of Anticholinergics

Effect	Atropine	Scopolamine	Glycopyrrolate
Heart rate	++	-/+	+
Mydriasis and cycloplegia	+	+++	-
Antisialagogue effect	+	+++	++
Sedative effect	+	+++	-
Increased gastric fluid pH	-	-	-/+
Central nervous system toxicity	+	++	-
Lower esophageal sphincter relaxation	++	++	++

Botox	▪ MOA: Reduction of saliva production ▪ Sites of injection: Inject submandibular and parotid glands ▪ **Timeline: Onset in 1-3 days, peaks at 3-6 weeks, lasts for 3-6 months** ▪ Done by ENT/IR, under local anesthesia/conscious sedation (rarely GA); requires U/S guidance; injects 2 submandibular glands +/− 1 parotid gland ▪ Side-effects (less side-effects with the image-guided approach): - Saliva thickening - Pain, swelling and hematoma at injection site - Mild dysphagia in first 2 weeks - Most significant reported problems are rare: **A.** Severe dysphagia in first 2 weeks (may require brief hospitalization and NG feeding) **B.** Aspiration pneumonia **C.** Loss of motor control of the head & neck
Surgical	▪ Duct ligation (parotid, submandibular or both); parents must be aware that it is irreversible, and the child **won't be able to feed orally after it's done** ▪ Bilateral submandibular gland excision ▪ Submandibular duct relocation - Done by ENT, under general anesthesia