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http://fac.ksu.edu.sa/mfarahat
Communication and Swallowing Disorders
Department:

ENT

Course:

ORL 432
Lecture Title:
Communication and Swallowing Disorders. Part I
Communication and Swallowing Disorders. Part II

Lecturers:
Khalid H Al Malki, MD, PhD
Mohammed Farahat, MD, PhD
Tamer Mesallam, MD, PhD
Lectures’ Objectives:

Students at the end of the lecture will be able to:

- Understand physiology of communication.

- Recall different categories of communication and swallowing disorders.

- Differentiate different causes of communication and swallowing disorders.

- Assess and manage different communication and swallowing disorders.
References:

- http://c.ksu.edu.sa/vas
Aim of this presentation:

AN INTRODUCTION !!
Communication Disorders

Communication difficulties have an impact on the following aspects:

- Academic,
- Social,
- Psychological,
- Employment,
- Professional,
- Financial,
- Family relations.
Communication Disorders

Swallowing Disorders

Voice Disorders  Speech Disorders  Language Disorders
Language
A arbitrary symbolic system relating sounds to meaning.

Speech
A neuro-muscular process whereby language is uttered. It includes the coordination of respiration, phonation, articulation, resonation and prosody.
Voice
The result of vibration of the true vocal folds using the expired air.

Swallowing
The process of successful passage of food and drinks from the mouth through pharynx and esophagus into the stomach.
Who is managing Communication and Swallowing Disorders?

Two schools:

1. Phoniatricians (MD’s).

2. Speech-Language pathologists.
What is Phoniatrikics?

- A medical specialty that deals with communication and swallowing disorders.
- It stems mainly from ORL (ENT), especially when dealing with VOICE disorders.

Union of the European Phoniatriicians (UEP)
www.phoniatriics-uep.org
Language Disorders
I. **Language Disorders:**


**Definition of DLD:**

Delay or failure to acquire language matched with age.
Prerequisites of normal language development:

1. Normal brain function.
2. Intact sensory channels (e.g., auditory).
4. Stimulating environment.
Causes of DLD:

A) Brain damage:
- Diffuse brain damage (MR).
- Brain damaged motorly handicapped child (CP).
- Minimal brain damage (ADHD).

B) Sensory deprivation:
- Hearing impairment.

C) Psychiatric disorders:
- Autism.
- Childhood schizophrenia.

D) Non-stimulating environment.

E) Idiopathic.
Assessment of the Cause of DLD:

I. History taking.

II. Physical examination.

III. Investigations:
   - Psychometry (IQ).
   - Audiometry.

DLD Sheet
Management of DLD:

- Early detection.
- Providing the suitable aid (HA or CI).
- Family counseling.
- Language therapy.
Redneck
Time Out
I. Language disorders:

[2] Dysphasia:

**Definition:**
Language deterioration after its full development due to brain insult: infarction, hemorrhage, atrophy, etc.
Assessment of dysphasia:

I. History taking.

II. Physical examination: … , neurological exam.

III. Investigations:
- CT / MRI brain.
- Dysphasia test.
- Psychometry (IQ).
- Audiometry.

Dysphasia Sheet
Management of dysphasia:

Individualized:

- Management of the cause.
- Physical rehabilitation (Physiotherapy).
- Family counseling.
- Language therapy.
- Alternative and augmentative communication.
Speech Disorders
II. Speech disorders:

1. Dyslalia (Misarticulation):

**Definition:**

Faulty articulation of one or more of speech sounds not appropriate for age.
Types of dyslalia:

A) **Sigmatism** (/s/ defect):
   - Interdental sigmatism.
   - Lateral sigmatism.
   - Pharyngeal sigmatism.

B) **Back-to-front dyslalia**:
   - /k/ → /t/
   - /g/ → /d/

C) **Rotacism** (/r/ defect).

D) **Voiced-to-nonvoiced dyslalia**:
   - /g/ → /k/
   - /d/ → /t/
   - /z/ → /s/ etc…
Assessment of dyslalia:

I. History taking.

II. Physical examination: ... , tongue, ...

III. Investigations:
   - Audio recording.
   - Articulation test.
   - Psychometry (IQ).
   - Audiometry.

Dyslalia Sheet
Management of dyslalia:

- Treatment of the cause:
  - Tongue tie.
  - Dental anomalies.
- Speech therapy.
II. Speech disorders:

2. Stuttering:

Definition:

The intraphonemic disruptions resulting in sound and syllable repetitions, sound prolongations, and blocks.
Incidence of stuttering: 1%.

Onset:
- Earliest = 18 months.
- Latest = 13 years.

Epidemiology:
- more in families with history of stuttering.
- can occur in mentally retarded.
- very rare in the hearing impaired.
**Gender ratio:**

4 : 1 (male : female)

**Theories of Stuttering:**

The exact cause is unknown.

- Organic theory.
- Neurosis theory.
- Learning theory.
Assessment of stuttering:

I. History taking.

II. Physical examination: APA, VPA, ...

III. Investigations:
   - Audio and video recording.
   - Stuttering severity (eg SSI).
   - Articulation test.
   - Psychometry (IQ).

Stuttering Sheet
Auditory Perceptual Analysis (APA):

A. Core behaviors:
   - Intraphonemic disruption.
   - Repetitions.
   - Prolongations.
   - Blocks.

B. Secondary reactions:
   - Muscular activity and struggle.
   - Interjection.
   - Word substitutions and circumlocution.

C. Concomitant reactions:
   - Fear.
   - Breathing (antagonism, interruption, prolongation, cessation, …).
   - Eye contact.
   - Skin pallor/flushing.
Management of stuttering:

- Family and patient counseling.

- Speech therapy:
  a. Indirect therapy: if not aware.
  b. Direct therapy: if aware.
II. Speech disorders:

3. Hypernasality:

**Definition:**

Faulty contamination of the speech signal by the addition of nasal noise. It results from velopharyngeal insufficiency (VPI).
Fiberoptic nasopharyngolaryngoscopy
**Causes of hypernasality:**

**I. Organic:**

1. **Structural:**
   
   a) Congenital:
      
      - Overt cleft palate.
      - Submucous cleft palate.
      - Non-cleft causes:
         
         
         . Congenital deep pharynx.

   b) Acquired:
      
      - Adenotonsillectomy.
      - Palatal trauma.
      - Tumors of the palate & pharynx.

2. **Neurogenic:**
   
   - Palatal upper motor neuron lesion.
   - Palatal lower motor neuron lesion.
Causes of hypernasality (cont.):

II. Non-organic (Functional):

- Faulty speech habits.
- Mental retardation.
- Neurosis or hysteria.
- Hearing impairment.
- Post-tonsillectomy pain.
Effects of VPI:

- Feeding problems: nasal regurgitation.
- Ear infections (tensor palati: V).
- Psychosocial problems.
- Communicative problems:
  . Speech: hypernasality.
  . Language: DLD.
  . Voice: hyper or hypofunction.
Assessment of hypernasality:

I. History taking.

II. Physical examination:
   - General.
   - ENT examination: ..., palate (inspection, palpation) ...
   - Simple tests:
     . Gutzman’s (a/i) test.
     . Czermak’s (cold mirror) test.

III. Investigations:
   - Audio recording.
   - Fiberoptic nasopharyngolaryngoscopy.
   - Psychometry (IQ).
   - Audiometry.
   - Articulation test.
   - Nasometry.
Management of hypernasality:

- Team work.
- Feeding.
- Hearing.
- Maxillofacial.
- Palatal and lip surgeries.
- Obturators.
- Communication:
  - Language: Language therapy.
  - Speech: Speech therapy.
  - Voice: Voice therapy.
II. **Speech disorders:**

4. Dysarthria:

**Definition:**

Any combination of disorders of respiration, phonation, articulation, resonance, and prosody, that may result from a neuromuscular disorder.
Assessment of dysarthria:

I. History taking.

II. Physical examination: …, mouth, palate, …, neurological exam, …

III. Investigations:
   - Audio recording.
   - Fiberoptic nasopharyngolaryngoscopy.
   - CT/MRI brain
   - Dysphasia test.
   - Psychometry (IQ).
   - Articulation test.
   - Audiometry.
   - Nasometry.
   - MDVP.
   - Aerodynamics (Aerophone II).
Management of dysarthria:

Individualized:

- Management of the cause.
- Patient counseling.

- Communicative therapy:
  - Articulation.
  - Phonation.
  - Resonance.
  - Respiration.
  - Prosody.

- Alternative and augmentative communication.
Voice Disorders
Prerequisites of “normal” voice production:

1. Normal range of movement of vocal folds.
2. Normal mobility of mucosa on deep layers.
3. Optimal coaptation of vocal folds’ edges.
5. Optimal pulmonary support.
6. Optimal timing between vocal fold closure and pulmonary exhalation.
7. Optimal tuning of vocal fold musculature (int. & ext.).
Definition of dysphonia:

- “Difficulty in phonation”.
- “Change of voice from his /her habitual”.
- “Hoarseness” = roughness & harshness of voice.
Etiological classification of dysphonia:

- **I. Organic Causes**
- **II. Non-Organic Causes**
  - Habitual
  - Psychogenic
- **III. Benign vocal fold lesions**
- **IV. Accompaniment of Neuro-psychiatric Ailments**
III. Voice disorders:

A) Organic voice disorders:

- Congenital.
- Inflammatory.
- Traumatic.
- Neurological.
- Neoplastic.
- Hormonal.
- Status post-laryngectomy.
Sulcus vocalis
Laryngeal carcinoma

Respiration

Phonation
Left vocal fold paralysis

Respiration

Phonation
III. Voice disorders:

B) Non-organic voice disorders:
   i. Habitual:

1. Hyperfunctional childhood dysphonia.
2. Incomplete mutation.
3. Phonasthenia (Voice fatigue).
4. Hyperfunctional dysphonia.
5. Hypofunctional dysphonia.
Hyperfunctional dysphonia

Respiration

Phonation
Phonasthenia

Respiration

Phonation
B) Non-organic voice disorders (cont.):
   ii. Psychogenic:

   1- Psychogenic dysphonia.
   2- Psychogenic aphonia.
III. Voice disorders:
C) Benign vocal folds’ lesions:

1. Vocal fold nodules.
2. Vocal fold polyps.
3. Vocal fold cysts.
4. Reinke’s edema.
5. Contact granuloma.
Vocal Fold Nodules: Adult Type

Respiration

Phonation
Vocal Fold Nodules: Juvenile Type

Respiration

Phonation
Left Vocal Fold Polyp with a Reaction

Respiration

Phonation
Left Vocal Fold Cyst

Respiration

Phonation
Right-sided Reinke’s Edema

Respiration

Phonation
Right-sided Contact Granuloma

Respiration

Phonation
Assessment of dysphonia:

I. History taking.

II. Physical examination: APA, ..., neck, ...

III. Investigations:
- Audio recording.
- Digital laryngostroboscopy.
- Digital laryngokymography.
- Acoustic analysis (MDVP).
- Aerodynamic analysis (Aerophone II).
- GERD (LPR) work-up.
- CT neck.

*Voice Sheet*
Stroboscopic Examination
Management of voice disorders:

- Pharmacological agents.
- Surgical procedures (Phonosurgery).
- Technical aid devices.
- Voice therapy.
Swallowing Disorders
Phases of normal swallowing:

1. Oral preparatory phase
2. Oral propulsive phase
3. Pharyngeal phase
4. Esophageal phase
Definitions

Swallowing: is the successful passage of food and drinks from the mouth to the stomach.

Dysphagia: pain, discomfort and/or difficulty in initiating or completing the act of swallowing.

Consequences of dysphagia:

- Dehydration.
- Weight loss.
- Aspiration pneumonia.
- Airway obstruction.
- Loss of joy of eating.
Causes of dysphagia:

- **Oropharyngeal**
  - Structural
  - Neuromuscular
    - Head & Neck Surgery
    - CVA

- **Esophageal**
  - Mechanical
    - [Solids]
    - Tumors
  - Neuromuscular
    - (Esophageal Dismotility)
    - [Solids & Liquids]
    - Achalasia
Assessment of dysphagia:

I. History taking.

II. Physical examination:
   - General examination.
   - Language and Speech assessment.
   - Vocal tract examination.
   - Neck examination.
   - Trail feeding.

III. Investigations:
   - FEES.
   - VFES (MBS).
   - GERD (LPR) work-up.
FEES
FEES protocol of evaluation (Langmore, 2003):

I. Anatomic and physiologic assessment.

II. Assessment of food and liquid swallowing.

III. Assessment of therapeutic interventions.
Normal FEES
(Thin fluid dyed blue)
Residue
Residue
Residue
Penetration
Penetration
Aspiration
Aspiration
Aspiration
Aspiration
Management of dysphagia:

🌟 **Oral vs. Nonoral feeding:**
Nonoral feeding when:
   a. Aspiration > 10%.
   b. Oral + pharyngeal transit time > 10 sec.

🌟 **Direct vs. Indirect therapy:**
   a. Direct: food or liquid is given to the patient.
   b. Indirect: no food or liquid is given (only saliva).

🌟 **Compensatory vs. Therapy techniques:**
   a. Compensatory: elimination of symptoms but no change in swallowing physiology, such as postural techniques.
   b. Therapy techniques: change of swallowing physiology, such as swallowing maneuvers.
Management of dysphagia:

- Swallowing therapy:
  - Diet modification.
  - Postural techniques.
  - Swallowing maneuvers.
  - Sensory enhancement techniques.
  - Motor exercises.

- Surgical treatment, eg medialization laryngoplasty.

- Medical (Drug) treatment, eg anti-parkinsonism drugs.

- Intraoral prosthesis.

- Alternative routes of feeding, eg NG tube feeding.
Office Hours

• Sunday: 9-11 am
• Tuesday: 9-11 am

Building 5 level 2 CSDU
Thank you