بسم الله الرحمن الرحيم

دانشگاه علوم بهزیستی و توانبخشی

Auditory rehabilitation based on balancing the interhemispheric connection

By:

Dr. Moslem Shaabani

Assistant Professor (USWR)

Introduction

- Several **test batteries for APD diagnosis** (e.g.Buffalo model, Bellis-Ferre Model and MAPA (multiple auditory processing assessments).
- **dichotic listening tests**
- Test interpretation is based on **individual ear score and ear advantage.**
- **Ear advantage** is the difference between the score of two ears in a given dichotic listening task.
- **REA**
- **Corpus callosum maturation** facilitate inter-hemispheric transfer and leads to decrement in the ear asymmetry
- **Significant ear asymmetry** (usually REA) can be indicative of APD.
- **Two main trainings** has been suggested for dichotic listening disorders: Differential Interaural Intensity Difference (DIID) and Dichotic Offset Training (DOT)

DIID procedure

- crossover performance point
- initial training: IID of 5 dB greater than the crossover point
- The level at the poorer ear was kept at 50 dB HL.
- Tasks that were used included: dichotic CV, dichotic sentences and dichotic story in music background.
- During a session, patients were asked to attend to both ears (free recall), or attend to only one ear at a time (directed recall).

DIID procedure

- There were 4 sessions per week, each session lasted for 30 min.
- The aim was reducing the IID.
- If performance in the poorer ear was ≥80%, then training continued at that specific IID for the entire week.
- If performance was ≤80%, the IID was increased in 1 dB increments until the performance of the poorer ear reaches 80% or until the IID level returns to the starting level. The goal was improving performance to the normal limit.

DIID procedure

- Based on the established norms, when there was only 10% ear asymmetry, the performance was considered normal.
- When there was a 10% asymmetry or less, training was stopped and two weeks after training was completed, DDT was retested to make sure the outcome was permanent. DDT was tested at the end of each session, too.

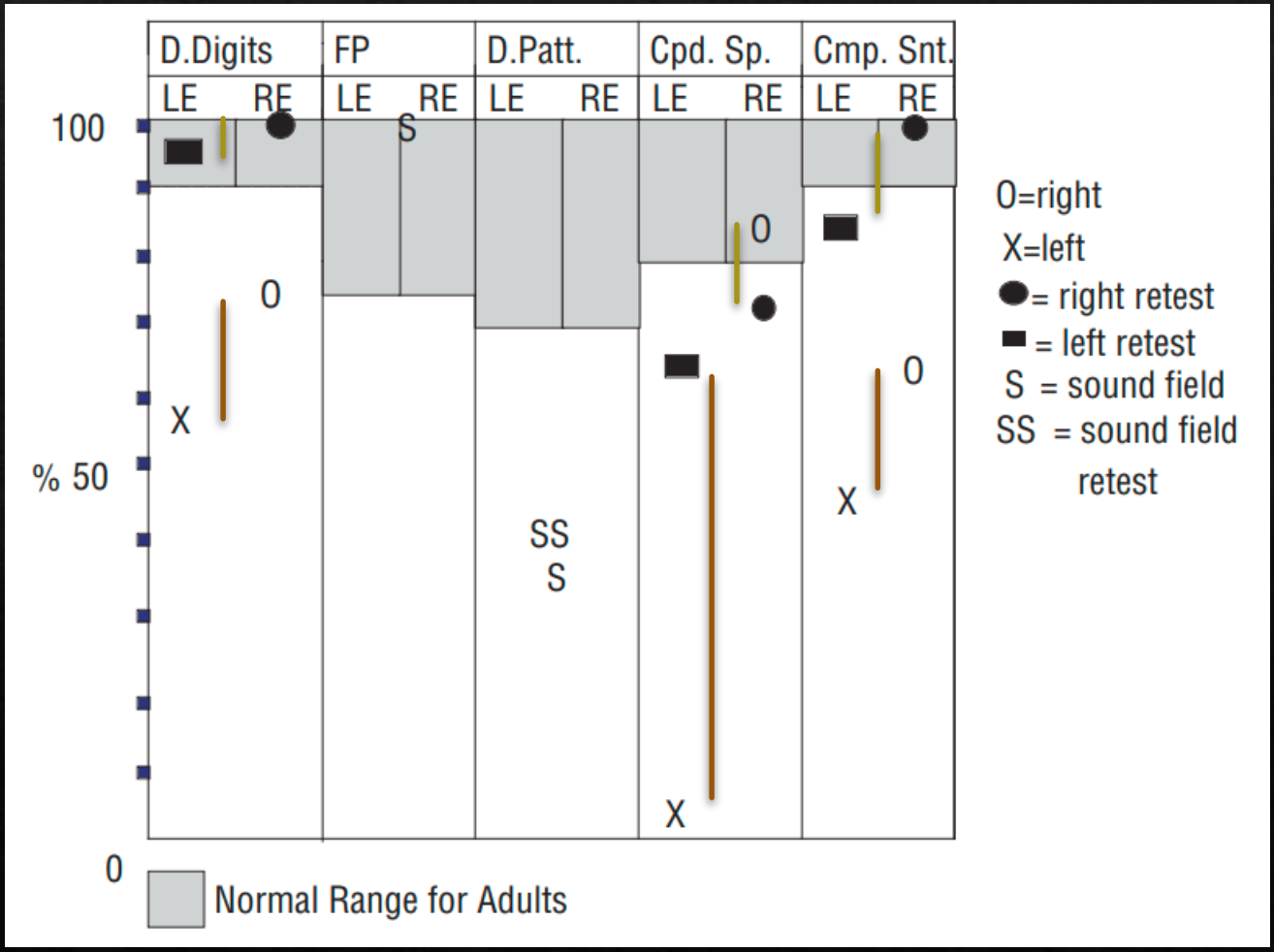
DOT procedure

- For DOT letters and CVs were used. Both materials were used during each session.
- The presentation was in the format of the staggered spondee word test (SSW test).
- Two letters and CVs were directed to the right ear and two letters and CVs to the left ear.
- There was an offset for the presentation of letters and for the first phoneme of the CVs.
- Items began in the right ear (left ear lag). Lagging the presentation to the poorer ear helps it to process signal better. The patient had to repeat all four items in the correct orde

DOT procedure

- The training started with competing items separated by 500 ms; gradually the offset was reduced by 100 steps for subsequent conditions.
- When the patient was able to perform the task with 80% accuracy or more at a specific offset, the offset was decreased.
- At the end of each session, DDT was evaluated.
- When there was a 10% asymmetry or less, training was stopped and two weeks after training was completed, DDT was retested to make sure the outcome was permanent.

Case Presentation



Conclusion

Lesson 1.

DIID is an effective and long-lasting auditory rehabilitation method

Lesson 2.

Effective in cases with significant REA (abnormal interaural asymmetry)

Lesson 3.

Dichotic offset training (DOT)

Lesson 4.

Effective in mTBI and concussion patients

Lesson 5.

Useful for teleaudiology

THANK YOU!