Factors Affecting Development of Babble in Pre-lingually Deaf Children Who Use Cochlear Implants.

Liz Hamilton & Helen Peebles
Yorkshire Auditory Implant Service

Edward C. Killan
LICAMM, University of Leeds
Emergence of babble is considered to be a major landmark in vocal development and is a precursor to first words.

Normally hearing children reach the canonical babbling stage between 7 and 10 months of age (Oller, 1980; Stark, 1980).

“Canonical” – well-formed CV syllables, rapid transitions between the sounds and a variety of sound combinations.
Research

Schauwers et al (2004):
- CI children did not need 6-10 months to babble.
- 4 months exposure to spoken language.
- Age at implant – not a critical factor.
- CI children are physiologically ready to babble.

Bass-Ringdahl (2010):
- Audible speech signal.
- Expected time frame for hearing age.

Ertmer & Mellor (2001):
- Increase of canonical babble by 5 months post.
- Implanted before 3 years old – similar to hearing children.
- Straight to first words – speech errors.
• Meet expectations
• Predictors of babble:
  ➢ Programming
  ➢ Age at implant
  ➢ Hearing aid use prior to implant
• Babble as predictor of additional needs
Methods

• Retrospective study
• 56 children (with full data set)
• Existing & real clinical data –
  - observations
  - discussions with parents
  - IMP questionnaire
  - PASS video samples & analysis
Methods

• Predictors of babble:
  – Only children with no diagnosed or suspected additional needs
  ➢ 3 predictor variables:
    • Optimal programming
    • Age at implant
    • HA use pre implant

• Babble as a predictor of additional needs:
  – All 56 children included
Results I: Predictors of babble

- Time to optimal programming (weeks) was significantly associated with presence of babble [OR = 0.94, \( p = 0.04 \)]

- Age at implant (months) was not significantly associated with presence of babble [OR=0.99, \( p = 0.81 \)]

Fisher’s exact test was non-significant (\( p = 0.68 \))
Results II: Babble as predictor of additional needs

- Additional needs

Fisher’s exact test showed significant association between babble and additional needs ($p = 0.04$)
Discussion

• Babble expectations
• Importance of optimal map
  ➢ Considerations for Rehabilitation team
• Age at implant
• Hearing aid trials pre-implant
• Additional needs
Thank you for listening

elizabeth.hamilton@bthft.nhs.uk

www.yais.org.uk