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LIETUVOS LOGOPEDŲ ASOCIACIJA

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Apraxia of Speech

Book of the 3rd Speech-Language Therapists' Congress of Baltic States

Estonia, Tartu, 22.04.2016 – 23.04.2016

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PROGRAMME OF THE CONGRESS

April 22nd 2016, Friday

09.00 – 10.15 Registration, coffee break (Newton cafe)

10.15 – 10.30 Opening of the congress

10.30 – 12.00 Acquired apraxia of speech, Marja-Liisa Mailend (USA)

12.00 – 13.30 Lunch (Newton cafe)

13.30 – 15.00 Acquired apraxia of speech, Marja-Liisa Mailend

15.00 – 15.30 Coffee break (Newton cafe)

15.30 – 17.00 Acquired apraxia of speech, Marja-Liisa Mailend

17.00 – 17.15 Summary of the day

April 23rd 2016, Saturday

09.00 – 10.30 Childhood apraxia of speech, Anita McAllister (Sweden)

10.30 – 11.00 Coffee break (Newton cafe)

11.00 – 11.15 Oral presentation: „Correlation between dyspraxia and learning disabilities“, Sarmite Tubele (Latvia)

11.15 – 11.30 Oral presentation: „Errors of phonological quantity in the speech of people with acquired apraxia of speech and concomitant aphasia“, Kaie Nõmmik (Estonia)

11.30 – 12.30 Childhood apraxia of speech, Anita McAllister

12.30 – 13.45 Lunch (Newton cafe)

13.45 – 14.00 Oral presentation: „Differential oral motor characteristics of pre-school age children: dyslalia, dysarthria or dyspraxia?“, Daiva Kairiene (Lithuania)

14.00 – 14.15 Oral presentation via video: „Dyspraxia approach in Romanian speech and language therapists – a pilot study“, Carolina Bodea Hategan, Dorina Talas (Romania)

14.15 – 15.45 Childhood apraxia of speech, Anita McAllister

15.45 – 16.00 Summary of the day

SUMMARIES OF KEY-NOTE SPEAKERS' ORAL PRESENTATIONS

Acquired Apraxia of Speech: Concepts, Diagnosis, and Treatment

MARJA-LIISA MAILEND (UNIVERSITY OF ARIZONA)

The purpose of this workshop is threefold: (1) to give an overview of the prevalent theories of apraxia of speech (AOS), (2) to discuss the state of the art in the differential diagnosis of AOS, and (3) to consider the different treatment types for AOS and their evidence base to support the use of these approaches clinically.

Following the Darley-Aronson-Brown classifications of motor speech disorders, AOS is defined as a speech motor planning/programming disorder. This definition differs from Luria's use of the term 'apraxia of speech'. Most importantly, Luria uses the term 'apraxia of speech' synonymously with afferent motor aphasia – aphasia with phonemic paraphasias (e.g., Luria & Hutton, 1977). This is problematic because much of the current research on AOS is concerned with differentiating AOS from aphasia with phonemic paraphasias (e.g., Haley et al., 2012). In terms of AOS etiology, this workshop covers the more commonly discussed form of AOS where the underlying disease or neurologic injury has an acute onset as well as AOS in the context of neurodegenerative disease, termed primary progressive apraxia of speech.

Differential diagnosis of AOS remains a challenge in the clinic as well as in research settings. Currently, the gold standard for AOS diagnosis is the opinion of an expert clinician who makes the diagnosis based on the consensus criteria which includes (a) the presence of distortions and distorted substitutions, (b) slow speech rate, and (c) prosodic abnormalities, such as equalized stress between syllables and intersyllabic pauses (Ballard et al., 2015). Recently published Apraxia of Speech Rating Scale (Strand et al., 2014) is discussed as an attempt to standardize the application of the diagnostic criteria reviewed above.

Finally, different treatment approaches are discussed for remediating AOS. The focus in this workshop is on the articulatory-kinematic approaches (e.g., Julie Wambaugh's Sound Production Treatment) and rate/rhythm approaches (e.g., Brendel & Ziegler, 2008) as these treatment types have the strongest evidence base to support their use in treating AOS (see Wambaugh et al., 2006 and Ballard et al., 2015 for an overview). The workshop concludes with an overview of general principles and guidelines that may be useful to consider in AOS treatment with an emphasis on the principles of motor learning (Maas et al., 2008).

Childhood apraxia of speech: Characteristics, differential diagnosis and evidence based intervention

ANITA MCALLISTER (CLINTEC, KAROLINSKA INSTITUTET)

Summary of presentation held at the 3rd Speech-Language Therapists Congress of the Baltic States in Tartu, April 2016

The presentation gave an overview of reported characteristics, co-morbidity, differential diagnostics and evidence base intervention for children with childhood apraxia of speech (CAS). CAS is the currently most common term for a relatively rare speech disorder attributed deficits in the planning and programming of motor commands necessary for speech production. The widely cited definition according to ASHA (2007) states: "Childhood apraxia of speech (CAS) is a neurological childhood (pediatric) speech sound disorder in which the precision and consistency of movements underlying speech are impaired in the absence of neuromuscular deficits, (e.g., abnormal reflexes, abnormal tone). The core impairment in planning and/or programming spatiotemporal parameters of movement sequences results in errors in speech sound production and prosody"

Characteristic of CAS vary depending on age. Characteristics of younger children during the first years of life is scarce with few reports on limited or deviant babbling (Highman, Leitão, Hennessey, & Piek, 2012; Strand, 2002; Davis & Velleman, 2000;) or silent babies (Davis & Velleman, 2000). Later in life observed characteristics include lack of diversity for both consonants & vowels, gaps in consonant or vowel repertoire, vowel errors, variability or inconsistency in word production, difficulties with coarticulation, restricted sets of syllables, groping movements and lack of flexibility and limited intonation or deviant prosody. In a study by Shriberg, Potter and Strand (2011) assessments included 10 different areas of speech production. To be diagnosed with CAS, a subject had to display four of the following 10 behaviors in three or more of the assessment tasks: vowel distortions, difficulty achieving initial articulatory configurations or transitionary movement gestures, equal stress or lexical stress errors, distorted substitutions, syllable segregation, groping, intrusive schwa, voicing errors, slow rate, slow diadochokinetic rates, and increased difficulty with multisyllabic words. These criteria were also used in a study by Murray and coworkers together with the criteria form ASHA technical report (Murray, McCabe, Heard, Ballard 2015; ASHA 2007b). Following a discriminant function analysis model they conclude that "polysyllabic production accuracy and an oral motor examination that includes diadochokinesis may be sufficient to reliably identify CAS and rule out structural abnormality or dysarthria"

Several studies have reported comorbidity between CAS and other disorders including language disorders (eg Lewis et al. 2004; Thoonen et al. 1997), neuropsychiatric disorders (Tierney et al. 2015), Downs syndrome (Kumin, Adams 2000) and oral praxis (Tükel et al.

2015). Problems with social communication, attention and temperament have been reported by parents as well as complex and timed manual motor tasks (Teverovsky et al., 2009).

In interventions for apraxia of speech principles of motor learning have been suggested based on studies of non-speech motor learning (Maas et al 2008). Murray and coworkers reported on the first ever randomized controlled trial with children with CAS (Murray, McCabe, Ballard 2015) comparing two intervention methods applying several such principles; the Rapid Syllable Transition (ReST) treatment to the Nuffield Dyspraxia Programme–Third Edition (NFDP3). Results showed large treatment effects for both methods. ReST maintained treatment gains from 1-week to 4-months posttreatment more effectively than the NDP3. Significant generalizations to untreated items was observed for both methods.

Despite recent gains there is still a lack of studies investigating the underlying neurology in children with CAS, as well as a need for continued discussions on core characteristics and studies on intervention outcomes comparing different treatment techniques including length and number of sessions, within session design and feedback mode. Currently three doctoral projects are conducted at the Division of Speech and Language Pathology, Karolinska Institutet. In these projects different aspects of motor functions and CAS are studied, http://ki.se/en/clintec/doctoral-education-speech-and-language-pathology . The overall aim of these projects is to contribute to increased knowledge of the disorder.

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Correlation between Dyspraxia and Learning Dysabilities

SARMITE TUBELE (UNIVERSITY OF LATVIA)

Is dyspraxia an outburst of problems only in speech, when speaking about verbal apraxia or dyspraxia? The concept is much wider – to understand all manifestations in school-age children with learning dysabilities taking into account also the specific causes of learning dysabilities.

Aim of the study is to state the correlation between dyspraxia and learning dysabilities to look inside the symptoms of learning dysabilities and reveal the understanding of the special education teachers.

Methods – theoretical analysis of scientific literature; survey with short questionnaire for special education teachers.

Results. Dyspraxia is a partial dysability of purposeful, coordinated movement and disorder of action (*Kirby & Sugden, 2007; Langham, 2015*) with problems to perform learned movements. In this case muscles and nerves are not damaged and it is important to exclude Cerebral Palsy or similar status. Symptoms of dyspraxia are overplapping with symptoms of other manifestations of Learning dysabilities and also such problems as attention deficit syndrome (ADS), attention deficite and hyperactivity syndrome (ADHS) and Asperger's syndrome (*Cowen, 2010*).

Learning dysabilities are defined as challenge, which may occure if there are problems with listening, thinking, speaking, reading, writing, spelling or performing mathematical calculations (Turkington & Harris, 2006). The origin of a problem is of neurobiological and it's manifestations are in academical achievements and social situations.

Most researchers find dyspraxia as a manifestation in almost all cases of learning dysabilities as it is revealed in articles. Results of the questionnaire for special education teachers at first didn't reveal the recognition of dyspraxia even as a symptom. It was not so obvious and important. Only after additional questions dyspraxia was confirmed as a real manifestation of difficulties in students with learning dysabilities.

In survey only diagnosed learning dysabilities were taken into account, but teachers say that there are more students with the same problems, only they are not diagnosed by pedagogical-medical commission and there is no possibility to use the special educational programs and help of a special education teacher; ther is limited possibility to use support measures during tests, control works and state exams.

Conclusions.

Neurobiological origin of learning disabilities define the presence of different problems in students including dyspraxia and there is a correlation between learning dysabilities and dyspraxia.

Motor coordination, both fine and gross motor skills are distorted alongside language problems and learning dysabilities and must be taken into account in intervention proceses.
This reffers also on academic skills in main areas – reading, writing and mathematics – where evaluation must be wider including specific questions about self-evaluation and self-confidence when experiencing failure.

Key words: dyspraxia, learning dysabilities.

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Errors of phonological quantity in the speech of people with acquired apraxia of speech and concomitant aphasia

KAIE NÕMMIK (WEST-TALLINN CENTRAL HOSPITAL)

AARO NURSI (UNIVERSITY OF TARTU, TARTU UNIVERSITY HOSPITAL)

MARJA-LIISA MAILEND (UNIVERSITY OF ARIZONA)

The purpose of this study was to describe errors of phonological quantity in the speech of people with acquired apraxia of speech and concomitant aphasia. Participants were asked to repeat the total of 54 different words. This list of stimuli consisted of 27 pairs of words that differed only in phonological quantity (long and overlong). 14 word pairs included a diphthong in the first syllable and 13 a monophthong. Speech samples were collected from two speakers with apraxia of speech and concomitant aphasia, two speakers with aphasia and ten subjects with normal speech and no history of speech, language or neurological disorders.

The age of participants ranged from 53-77 years. Findings revealed that speakers with apraxia of speech made considerably more quantity errors than all the other groups. In addition, speakers with aphasia made more quantity errors than the subjects without speech disorder.

Neither the presence of the diphthong nor the specific quantity of stimulus had a statistically significant effect on the number of errors made. The amount of quantity errors was affected only by a speech impairment and its severity.

Keywords: apraxia of speech, aphasia, phonological quantity, minimal pairs

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Differential oral motor characteristics of pre-school age children: dyslalia, dysarthria or apraxia of speech?

DAIVA KAIRIENE (SIAULIAI UNIVERSITY)

Purpose of the research - to identify the main differential characteristics of articulation disorders (dyslalia, dysarthria or articulatory dyspraxia) in children, aiming to construct and validate the questionnaire (test), as an assessment tool for speech and language therapists (SLT) use in practice.

Research methods and sample: group discussion aiming at identification of the need for oral motor assessment tool (N=6 speech and language therapists, working in different workplace: pre-school, pedagogical psychological centre, health care institution); construction of the questionnaire (test), based on theoretical characteristics of disorders and practical SLT's experience (N=6 speech and language therapists, working in different workplace: pre-school, pedagogical psychological centre, health care institution); testing, aiming to validate availability and reliability of the questionnaire (N=9 speech and language therapists; N=46 pre-school age children); group discussion (qualitative analysis) and structured questionnaire (quantitative analysis) seeking to evaluate the quality of the questionnaire structure and content (N=9 speech and language therapists, N=2 neurologists).

Main results and conclusions. SLTs, working with the pre-school children, identified the main challenges of the assessment, they meet with in the practice: professionalism and experience-based assessment, lack of the research in the field, limited duration for the complete assessment of the children speech and language, lack of standardized tools for the oral motor and articulation assessment and lack of inter-professional teams in the pre-school institutions.

SLTs, experts in the field, constructed the questionnaire, which is consisted of 9 tasks for the assessment of: mimics, respiration, phonation, articulation (functions and structure of the jaw, lips, tongue, soft palate), speech and prosody. There is provided 3 rows of answers (criterions) for the evaluation of each task. Summary of the assessment results leads to the prevailing criterions, which are relevant to particular articulation disorder (prevailing 1st row answers shows the symptoms of dyslalia, 2nd row answers are related to articulatory dyspraxia and 3rd row answers are associated with symptoms of dysarthria).

During the qualitative evaluation of the questionnaire (test), SLTs and neurologists distinguished these advantages of the assessment tool: expedient tasks, criterions for the description of oral motor are based on the main symptoms of articulation disorders, which lead to differentiation and identification of particular disorder. Also, professionals maintain that this tool is simple, easy-used and can complement the traditional speech and language assessment of pre-school age children. Neurologists indicated the need of supplementary gross and fine motor assessment, which would support the identification of articulation disorders, particularly in cases of dysarthria and dyspraxia.

Results, of qualitative analysis of the questionnaire (test), show that test is very useful and important for the improvement of oral motor assessment quality in SLTs' practice. The structure and content of the questionnaire is evaluated as suitable for differentiation of articulation disorders' characteristics and supports the identification of particular articulation disorder of pre-school age children.

Key words: speech dyspraxia, articulation disorders, differential characteristics, pre-school age

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Dyspraxia approach in Romanian speech and language therapists – a pilot study

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Nowadays dyspraxia disorder is a common diagnose in medical evaluations in Romania. The purpose of this study is to identify how often speech and language therapists work with children or persons diagnosed with dyspraxia. Because this dyspraxia is frequently associated with other disorders, we try to identify the most common disabilities or disorders associated with dyspraxia in speech and language therapists practice. Another objective for this study is related to the speech and language therapists' opinions about their training in dyspraxia field, in their initial training and continuous development training. There were 108 speech and language therapists who answer to an online questionnaire; all these therapists are members in ASTTLR (Romanian Association of Speech and Language Therapists) in February and March 2016. The results proved that dyspraxia is a very frequent diagnoses met in practice reported by 22% of the participants, even if 4% reported that they did not work with children or persons diagnosed with dyspraxia. The diagnosis of dyspraxia is associate with other disabilities in 62% cases, and the most common disabilities associated with this diagnose are autism spectrum disorder, ADHD, dysarthria and cognitive disabilities, Down syndrome, Pierre Robin syndrome, dyslexia and dysgraphia. The majority of speech and language therapists, 99% consider that they need more training in dyspraxia therapy. There is another interested aspects identified during this study regarding the therapists' work experience, 35% of the therapists who answer to this questionnaire have an experience less than 5 years and none of the therapists have a work experience more than 25 years. The results help ASTTLR to identify the speech and language therapists` needs and to propose new training in this area. The future study will try to extend the number of participants and to include speech and language therapists with a work experience more than 25 years.

Keywords: dyspraxia, dysgraphia, dyslexia, speech and language therapy, associated disorders to dyspraxia

Practical Activities in Speech and Language Therapy for Children with Dyspraxia

EGIJA LAGANOVSKA (UNIVERSITY OF LATVIA)

ILZE VILKA (UNIVERSITY OF LATVIA)

Abstract

Dyspraxia often comes with language problems and sometimes a degree of difficulty with perception and thought, poor handwriting is one of the most common symptoms of dyspraxia. Children with dyspraxia affecting their ability to make and plan the movements of the larynx, tongue, lips, and palate and /or generalized dyspraxia affects gross and fine motor planning. Dyspraxia does not affect a children's intelligence, but it can cause low academic achievement. Speech and language therapists may called also apraxia of speech, which affects child's ability to coordinate the speech organs for accurate production of speech. Children have problems saying sounds, syllables, and words (one of the most notable symptoms is difficulties putting sounds and syllables together in the correct order to form words). Child with dyspraxia needs help by practicing simple tasks and can benefit from step–by–step progress into more complex activities. Through play and simple exercises in speech and language, therapy can help the child acquire new motor planning skills to develop child's speech and language. Appropriate correction developmental activities (intervention) will help child with dyspraxia be successful in school and later in life. The poster presentation will be offered practical activities that can be used in therapy.

It is an important to remember about the collaboration between child, specialists (physiotherapist, neurologist, ergotherapeutist, speech and language therapist), group of teachers, head of educational institution, music teacher, sports teacher and child's family. If cooperation will be more positive, then will be results that are more successful. With appropriate support and intervention, child with dyspraxia can achieve success at school and in the community.

The aim of poster presentation – description of practical activities for children with dyspraxia used in speech and language therapy, based on analyses of scientific literature.

Articulatory Exercises and Fine Motor Skills Interaction for Correction of Articulation Disorders

LUCIJA ANOSHKO (UNIVERSITY OF LATVIA)

Aim: to examine practically articulatory exercises and fine motor skills interaction's efficiency for sound pronunciation correction in pre-school age children with articulation disorders.

Methods: Theoretically are analyzed sound pronunciation correction methods used articulatory exercises for pre-school age children; practically are described articulatory exercises used in everyday work with pre-school age children with sound pronunciation disorders in the preschool educational institution.

Results: The participants of the study are 13 pre-school age children with articulation disorders (10 boys and 3 girls) who attend special kindergarten for children with speech disorders.

The analyses of data prove that articulatory exercises allow to normalize articulatory organs muscular tone; to stimulate articulatory apparatus motor coordination; to activate speech functions.

Conclusions: Articulatory exercises with fine motor skills elements can afford to make the process of sound pronunciation correction more interesting and attractive for children; using this model of articulatory exercises speech therapist has a great opportunity to find new methods of sound pronunciation correction according to the child necessities.

Keywords: *articulatory exercises, fine motor skills, preschool age children*