

THE DECODING OF THE FLOUTING OF THE GRICEAN RELEVANCE MAXIM IS IMPAIRED IN MENTAL RETARDATION CAUSED BY PERINATAL HYPOXIA. A BRIEF REPORT

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NYELVPRAGMATIKAI DEFICIT MENTÁLIS RETARDÁCIÓBAN

A szerzők a Grice által leírt relevancia maxima sértésével kapcsolatos dekódolási deficitet vizsgálták mentális retardációban szenvedő gyermekek körében, ahol a mentális retardáció oka perinatális hypoxia volt. A mentális retardált gyermekek csoportját mentális kor alapján illesztett egészséges gyermekekkel hasonlították össze. A vizsgálat során a pragmatikai zavart öt rövid „kérdés-felelet” párral vizsgálták, amely párbeszédekben a relevancia maxima sértésével fejez ki a beszélő valamilyen rejtett üzenetet. A mentális retardációban szenvedő gyermekek szignifikánsan rosszabbul teljesítettek a relevancia maxima sértésének helyes dekódolása vonatkozásában. Az eredmények rámutatnak, hogy a perinatális hypoxia kapcsán kialakult mentális retardáció esetében nyelvpragmatikai zavar mutatható ki.

KULCSSZAVAK: mentális retardáció, nyelvpragmatika, griceai maximák, perinatális hypoxia

SUMMARY

The authors examined the decoding of the flouting of the Gricean relevance maxim among children with mental retardation compared to a mental age matched control group with average intellectual capacities, where the cause of mental retardation was perinatal hypoxia. They have investigated the decoding deficit by five short „question and answer” conversation vignettes, where the flouting of the relevance maxim was presented. They have found significant deficit in the mental retardation group in their capacity to decode properly the flouting of the Gricean relevance maxim. These data are the first that point at a pragmatic language use deficit in mental retardation caused by perinatal hypoxia.

KEYWORDS: mental retardation, pragmatics, Gricean maxims, perinatal hypoxia

Introduction

Recent research on the theory of mind deficits among children with mental retardation with various etiology has shown important data on these children's inability to conceptualize other people's mental states (eg. their beliefs, knowledge and intentions) and hence their inability to explain and predict others behavior (Benson et al. 1993, Happé 1994, Tager-Flusberg, Sullivan 1994, Yirmiya et al. 1996). Evidence for a disease-specific theory of mind deficit has been provided in children with Williams syndrome (Tager-Flusberg, Sullivan 2000) and most recently in fragile X-syndrome (Lewis et al. 2005, Grant et al. 2007). A

current trend in research to identify the connection of theory of mind capacities and linguistic development or pragmatic language use among children and adolescents with mental retardation (Abbeduto et al. 2004, Lorusso et al. 2007). Several studies have demonstrated that the development of the theory of mind is inextricably linked to the development of language use (Lewis, Osborne 1990 Abu-Akel 1999). Shatz has proposed that the child's development of the theory of mind is specifically linked to the development of his/her conversational skills (Shatz 1994). The results of the study – on the theory of mind and language ability of children and adolescents with intellectual dis-

ability – by Abbeduto et al. (2004) indicated that for individuals with intellectual disability who have limited narrative language skills, those limitations contribute substantially to their failure on the false belief task. Earlier in a classic paper Sperber and Wilson (1987) have pointed out that successful communication (the pragmatic aspect of language) depends on inferring the beliefs and intentions of our partner in conversation. Such successful communication is linguistically realized in part by cohesion (Rochester, Martin 1979) and in partly by abiding by the maxims derived from the cooperative principle (Grice 1968). As most recently Cummings has firmly stated, no one should wish to challenge the centrality of Grice's thinking in pragmatics (Cummings 2007). The ability of decoding the flouting of the different maxims described by Grice should be used as a sensitive but simple research instrument to study pragmatic language use deficits in neurodevelopmental disorders and among patients with brain damage (Surian, Baron-Cohen, van der Lely 1996, Abu-Akel 1999, Sabbagh 1999, Surian, Siegal 2001, Tényi et al. 2002, McKenna, Oh 2005, Cummings 2007).

The importance of making appropriate inferences about communicative inferences was first considered by Paul Grice (Sabbagh 2001). Noting that people do not always mean what they say, Grice (1968/1991) proposed a distinction between two kinds of meaning present in any given utterance: „sentence meaning” and „speaker meaning”. Sentence-meaning is the interpretation that can be derived from the words themselves as specified by the grammar and primary semantic relations of the utterance (Searle 1969). Speaker-meaning is the meaning that is derived through an understanding of what the speaker intended to communicate via his or her utterance. Grice's general assumption is that people are inherently cooperative in communication („The Cooperative Principle”) at least regarding efficient transmission of the informative content of a message (Grice 1968/1991). Ideally, this efficiency is achieved through the adherence to four maxims: of quantity (give sufficient but not unnecessary information), quality (be true and honest), relevance (be relevant) and manner (avoid ambiguity and obscurity). The maxims are supposed to govern both the production and the interpretation of messages (Brumark 2006). Indirect speech may be explained as more or less deliberate non-observance of the maxims,

the flouting of a maxim should be used as an instrument to communicate hidden meanings.

As the decoding deficit of the flouting of the Gricean maxims is a sensitive and specific instrument to detect impaired pragmatic language use, in our present study first in literature we have evaluated the decoding inability of children with mental retardation caused by perinatal hypoxia.

Method

Participants

20 children with mental retardation caused by perinatal hypoxia and 20 children with average intellectual capacities as healthy controls were investigated in the study. The patients and the control children were matched according to mental age, gender and ethnic origin. IQ levels were measured by the Budapest Version of the Binet-Simon test (Czeizel et al. 1978), the average of the patients IQ level was 48 (SD=2). The mean chronological age of the children with mental retardation was 13,1 (SD=0,9), the mean of mental age was 6,9 (SD=0,5). Only children with mental retardation caused by perinatal hypoxia were evaluated in the study, information on the etiology of the mental retardation was from previous medical records. The inclusion criteria was that the Apgar score should be 4 or less at 1 minute, and/or 6 or less in 5 minutes after delivery. Control children matched to mental age were collected from local elementary schools, their mean chronological age was 6,7 (SD=0,4), their mental age was equivalent to their chronological age. The patients were collected from special schools for children with mental retardation, individuals with other somatic or psychiatric disorders (including epilepsy) and children with any kind of pharmacotherapy were excluded from the study. The parents signed a detailed informed consent after the careful explanation of the study. The study design followed the instructions of the latest version of the Declaration of Helsinki and was done following institutional guidelines. This study design was approved by the Committee on Medical Ethics of the University of Pécs.

Procedure

The decoding capacity of the flouting of the Gricean relevance maxim was measured by 5 short „question and answer” conversation vignettes, where the observed child should recognize the

hidden communicative intention in the answer. The conversational vignettes are presented on Table 1. The capacity of the decoding of the flouting of maxim was measured on a score from 0 to 2, where the correct recognition has meant a point 2, while the incapacity to decode was point 0, so a child should get a maximum of 10 points during the examination. The evaluation was done by two raters, the raters in a previous pilot study have shown excellent inter-rater reliability, the Cohen kappa was above 0,75. The statistical analysis was done by the Student t-probe and because of the small sample size it was controlled by the non-parametrical Mann-Whitney U-test as well.

Table 1

Dad says to children: — Come in from the garden. — It is not dark yet.
Dad asks from his son: —Do you like Uncle Steve? — He always shouts.
Dad says to his child: — Brush your teeth. — I am not sleepy now.
Dad asks his son: — Have you learnt for today? — I will not do an oral test
Dad instructs his son: — Go to learn dear! — I am hungry Dad.

Results

The children with mental retardation caused by perinatal hypoxia have made significantly more mistakes during the decoding of the flouting of the relevance maxim (the average of the patients group was 1,65, SD:1,395, SE:0,312, the average of the control children was 8,55, SD:1,872, SE: 0,418). The Student t-probe was highly significant ($t=13,08$, $p=0,00001$, $df:19$, $CI:5,795,8,005$). Controlling the results by the non-parametric Mann-Whitney U-test a highly significant difference was found between the group of the children with mental retardation and the control children ($p=0,00001$).

Discussion

We first have found that children with mental retardation caused by perinatal hypoxia has a specific, not IQ-related pragmatic language use deficit measured by the decoding of the flouting of Gricean relevance maxim compared to a mental age matched control group of healthy children. In Rundquist's study on gender-related differences regarding indirectness in conversation between spouses and parents' discourse with children, men flouted the Gricean maxims more frequently than women did (Rundquist 1992). Surian, Baron Cohen and van der Lely investigated autistic individuals sensitivity to violations of various Gricean maxims of communication including maxims of truthfulness, quantity, relevance and politeness (Surian, Baron-Cohen, van der Lely 1996). Subjects were presented with 27 short conversational exchanges consisting of one speaker asking a question and two additional speakers providing a reply to the question. Of the two replies, one constituted a maxim violation while the other was conventional. For example, if the asker asked „Where do you live,“, subjects would hear „I live in London“ from one speaker and „I live on the moon“ from another. Subjects were asked to identify the reply that sounded „funny or silly“. Relative to IQ-matched groups of children with specific language impairments (SLI) and normal children, autistic children performed more poorly overall in this task. However, according to Louise Cummings this study has missed, in an important way, the pragmatic point in these exchanges (Cummings 2007). The pragmatic significance of this exchange rests, not in the detection or recognition of the violation of a Gricean maxim, but in the use of that recognition to derive the speaker's intended or implied meaning (Cummings 2007). The same missing of the pragmatic point can be seen in a more recent study by Surian and Siegal using the Pragmatic Violation Test (Surian, Siegal 2001) studying right hemisphere-damaged patients. In spite of the problems with their methodology, it can be considered as an important data, that they found reduced sensitivity to pragmatic violations among right-hemisphere-damaged patients in contrast to left hemisphere-damaged indi-

viduals. In a previous study our group have reported on the reduced capacity of patients with schizophrenia to decode the flouting of the Gricean relevance maxim (Tényi et al. 2002). The rating of conversational vignettes which we have used in our previous and present studies, was considered as a sensitive marker of pragmatic language use and theory of mind deficit, and it was recommended as a useful instrument for research (McKenna, Oh 2005, pp.120).

Our preliminary results can support the importance of research on the decoding inabilities of the

fouling of Gricean maxims among individuals with mental retardation, and we consider further studies as important on IQ-independent pragmatic language use and theory of mind deficits among children with mental retardation caused by different environmental factors.

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