

THEORY OF MIND IN SOTOS SYNDROME

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Background

Little is known about the cognitive-behavioural characteristics of Sotos syndrome. Where descriptions have been attempted they have been largely based on clinical observation and anecdotal evidence. However, a number of empirical studies have consistently reported a recurring pattern of behaviour in children and adults with the syndrome. Most notably autistic-like impairments in social interaction and communication are commonly reported (Ball et al., 2005; Sarimski, 2003; Mouridsen & Hansen, 2002; Mauceri et al., 2000; Cole & Hughes, 1994; Finegan et al., 1994; Varley & Crnic, 1984; Livingood & Borengasser, 1981).

Impaired social functioning in autism and Sotos syndrome

Studies exploring the association between impaired social functioning and theory of mind (the ability to reason about the mental states of the self and others) have noted associations between intentioned social interaction, imaginative play, perspective-taking ability, attachment security and early false belief understanding (Fonagy et al., 1997; Asington & Jenkins, 1995; Lalonde & Chandler, 1995), suggesting that theory

of mind ability is in part related to some aspects of social development and social competence. Since some of the behavioural features of Sotos syndrome are similar to those seen in autism it seems reasonable to postulate that the aetiological bases of these abnormalities might also be similar. This leads to the question of whether a theory of mind deficit underlies the impairments in social interaction and communication found in Sotos syndrome.

The Study

Eighteen adults with a diagnosis of Sotos syndrome were recruited from the Department of Clinical Genetics, Birmingham Women's Hospital. Participant suitability was established by a Clinical Geneticist based upon the following criteria (defined by Cole and Hughes, 1991): 1) a period of accelerated growth in early childhood 2) distinctive facial features 3) advanced bone-age at some time in childhood, e.g. above the 90th percentile using TW2 standards (Tanner et al., 1975) 4) descriptive evidence of early developmental delay, with particular emphasis on delay in reaching language and motor milestones

Participants' theory of mind ability was tested using a task of belief reasoning (Apperly et al., 2004; Apperly, Samson & Humphreys, 2004). Their rates of autistic behaviours and repetitive behaviours were also assessed using the Social Communication Questionnaire (Berument et al., 1999) and the Repetitive Behaviour Questionnaire (Moss & Oliver unpublished).

Findings & Conclusions

When taken together the findings of the present study show that individuals with Sotos syndrome do not meet the criteria for autistic spectrum disorders, however they do show impairments in belief reasoning, a finding which warrants further investigation. There was also evidence to suggest individuals with Sotos syndrome have difficulties in executive control as well as showing high rates of repetitive behaviours. Interestingly, rates of repetitive behaviour, in addition to errors on false belief trials, were not significantly different between the groups despite significant differences in levels of adaptive functioning. This finding was not expected. It is

acknowledged however, that given the study's limitations conclusions regarding these observations must be viewed with caution.

Although exploration of the underpinnings of the social dysfunction and repetitive behaviours seen in Sotos is in its early stage the findings of the present study highlight a number of clinical issues and avenues for future research.

There is evidence to suggest that belief reasoning might be impaired in Sotos syndrome. It is recommended that in order to validate this position further, testing using a larger sample size is necessary. Although the high rates of repetitive behaviours observed in this sample were not shown to significantly correlate with rates of autism there remains the possibility that these behaviours may have an impact on social dysfunction in this group. It is recommended therefore, that interventions aimed at addressing social impairments in Sotos syndrome may also need to address the impact of such repetitive behaviours in daily living.

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EXECUTIVE SUMMARY