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Title: Hear today but maybe not tomorrow - the implications of Glue Ear - research findings

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Example citation: Capewell, C. (2014) Hear today but maybe not tomorrow - the implications of Glue Ear - research findings. *DECP Debate*. **150**, pp. 27-31. 1471-5775.

It is advisable to refer to the publisher's version if you intend to cite from this work.

Version: Accepted version

Official URL: <http://www.bpsshop.org.uk/DECP-Debate-150-March-2014-P3722.aspx>

<http://nectar.northampton.ac.uk/6486/>



Hear today but maybe not tomorrow - the implications of Glue Ear – research findings

Abstract

Although Glue Ear has been known about for many years, and at one time was life threatening, today many educational professionals see it as a minor issue with no long term problems. While this may be the case for the majority of children, those who have the condition in the longer term may be impacted in psycho-social development, cognitive processing and academic performance. This article identifies aspects from the primarily quantitative research which suggest that the greatest impact is likely to be on those young people and their parents with the severe form of the condition. Some of the potential implications for EP practice are identified.

What is glue ear/ Otitis Media with Effusion (OME)?

Otitis media with effusion (OME), or ‘glue ear’, is recognised as one of the most common conditions in early childhood. There have been over 50 different terms given to it over the last 120 years (Black 1985). OME is a form of conductive hearing loss in which the area of the ear between the ear drum and the cochlea, the middle ear, becomes filled with liquid instead of air. This reduces the transmission of sound waves to the auditory nerve. It is the most prevalent reason for children visiting a doctor and for surgery in children (Wilson 2009). It is believed that 80% of children will have at least one episode of it before the age of 10 years (Welsh 2008). It occurs most frequently in young children, with peaks at 2 years and 5 years, when they first attend day care or school. The mean duration of an episode of OME is about 6-10 weeks (Welsh 2008). When children have OME they are temporarily deaf and find it particularly difficult to hear in noisy environments, such as a classroom (Toe 2009). It is a condition that is common across the world. There is some evidence that it is more prevalent in boys than girls (Takata and Chan 2003).

Children with Down Syndrome, cleft pallet and premature birth are much more likely to have OME. There is higher likelihood of children whose parents smoke at home having OME and there is an increased risk of it in children who have not been breastfed. It is seasonal with higher numbers of episodes between October and February - the months when most teaching takes place in British schools.

For many parents the message they receive is that OME is a temporary condition with no longer term consequences. The research by audiologists and speech and language therapists does not seem to be widely disseminated amongst educational professionals.

OME is a continuum condition with some children only having one or two episodes whereas others have ongoing problems. The more episodes a child has, from an earlier age then the greater likelihood of a bigger impact. It is thought that about 20% of children will have the condition longer term (from under 2 years to over 10 years) with a smaller percentage continuing to have the condition into adulthood. Very little research has been conducted into the condition in the school environment.

Research into behavioural impacts of OME on children

An effective summary of the early research into ongoing bouts of OME and behaviour is found in Wallace and Hooper (1997). The researchers identify that there have been investigations into the link between OME and the various attention deficit disorders – Attention deficit disorder (ADD), attention-deficit/hyperactivity disorder (ADHD). In two of the studies described in Adelman, Altschuler, Lipkin and Walco (1990) and Hagerman and Falkenstein (1987) all of the participants had been recruited through child development clinics, with referral based on behavioural difficulties or developmental delay. A control group design was used with participants either identified as ADHD or not ADHD (control). In both studies those participants with ADHD were found to have statistically significant levels of OME when compared to the control group. The question then becomes, are children who have multiple episodes of OME over a prolonged period of time more likely to have a tendency towards ADHD, or are OME children misdiagnosed as having ADHD? It could be that a link is not being made between the behavioural characteristics of ADHD and those of OME so that the former is regarded as the ‘cause’ rather than latter. This could be in part because of the way in which OME is positioned as ‘temporary’ without longer term consequences for the ‘average’ child (Paradise et al 2007). It might be worthwhile for educational psychologists to investigate the medical records of children presenting with ADHD type behaviours to identify if there has been a history of hearing loss leading to strategies that mimic ADHD symptoms, such as distractibility, hyperactivity, disorganisation and lack of task focus.

In social interactions one of the findings of the research was that children with a history of OME are more likely to demonstrate fearfulness, dependency, restlessness and being quarrelsome (Silva et al 1982). It is suggested that an increase in hearing loss, albeit intermittent, does impact social skills perhaps with a child being less able to interact and understand the behaviours of others (Bidadi, Nejadkazem, and Naderpour 2008). There is some suggestion that a child’s pragmatic language skills may lead him/her to a literal interpretation of what is said (Vernon-Feagans, Miccio and Yont 2003). This could lead to tension between a student and teacher in the classroom, with teachers tending to use rhetorical questions which the child could interpret literally, such as a situation when a child is late into class, the teacher asks, “What time do you call this?” with the child replying, “Ten past nine.” The teacher may well label the child as disobedient or difficult. Equally in terms of friendship the child with ongoing OME and subsequent hearing loss may not be able to interpret pragmatic comments made by classmates potentially leading to rejection or neglect.

Teachers may perceive children with OME as being ‘off-task’ during activities such as story reading or when expected to maintain attention on a task. It could be that trying to sustain concentration on tasks which involve high levels of language lead to fatigue in the child so he/she tunes out (Wilson, R. 2009). This behaviour then becomes habitual so that their attention to tasks involving a lot of language is likely to show the child withdrawing into him/herself (Timmerman, Meesters, Anteonis and Chenault 2007).

The other factor which may impact on the way that a child with recurring OME behaves is the noise level in the environment. For example if there are high levels of background noise which make it difficult for the child to discriminate sound, then he/she may be more prone to tune out (Manlove, Frank and Vernon-Feagans 2001). This in turn may lead to disruptive behaviour due to his/her attention being drawn

elsewhere or distractions so that he/she may interact inappropriately with other children. It could also be that low grade persistent pain may also make the child less able to focus and/or more likely to become irritable. It could also be that the inability to understand what is happening could lead to less socially acceptable behaviour, including aggression due to frustration.

OME and Auditory Processing

In children with ongoing OME, their ability to learn to differentiate the location of sounds may be compromised. Children develop the ability to identify the direction from which a sound is coming (localization) from birth up until about the age of 13 years (Hall, Grose, and Drake 1997). They use the clues which they derive from comparing the small differences in the rate at which the sound is heard and processed between the two ears. With practice the ability develops. If a child has intermittent hearing loss, this can mean that those skills are not developing at the same rate as their peers. It can mean that if a child is unable to filter out such noise then he/she could become overwhelmed. For example, the noise in many early years environments and playgroups can be quite high. This can be exacerbated when there are surfaces off which noise reverberates, such as high ceilings or uncarpeted floors. As the child can not filter out the sounds, it can feel quite overwhelming resulting in him/her trying to 'escape' perhaps by going under a table where the echo level is decreased, or putting his/her hands over the ears and turning away from others. This could be interpreted as the child showing 'autistic' behaviours. Without understanding what is going on in the psychoacoustic centres of the brain, such behaviour could be seen as problematic and worthy of further investigation. Perhaps by making minor adjustments to the environment, such as having curtains to absorb some of the noise thus helping to reduce the number of directions from which sounds originates, the child no longer has a 'problem'. The intermittent nature of OME can further complicate interpretations of a child's behaviour. When hearing is 'normal' the child may well not exhibit the same discomfort and distress as when hearing is impacted by OME.

Attachment Security and Parental Anxiety

McCallum and McKim (1999) identify the ways in which ongoing OME may well impact the type of attachment between mother and child. The stress of parenting a child with ongoing ear infections is not difficult to imagine: sleep loss with accompanying irritability, difficulty in comforting the child and the recurring nature of the condition would be expected to put a strain on the relationship. For most children OME occurs in the first three years of life when a child's language skills are not well developed so his/her ability to express what is wrong is likely to be limited. This may lead to parents feeling inadequate though being unable to comfort their child when in pain from ear infections. Research evidence suggests that those parents of children with ongoing OME interact less positively with their children (Black, Gerson, and Freeland 1988) and the children appear more detached from their mothers (Teele, Klein, Chase, Menyuk and Rosner 1990). It is not surprising that in some cases the attachment between mother/parents and child may not be secure. For educational psychologists awareness of the way in which OME can impact the relationship can lead to a reassessment of the situation, perhaps alerting parents that the 'fault' is not within themselves or their child. The focus could be on working with

them to find effective ways of dealing with the lack of sleep and encouraging more positive bonding.

Parental stress levels may well be higher in children with ongoing OME when the relationship that parents imagined does not match their reality (Forgays, Hasazi, and Wasserman 1992). This could be compounded due to parental concerns about the child's language development and happiness. This has been translated as the parent's anxiety level transmitting to the child (Bellussi, Mandala, Passali, Passali and Passali. 2005), rather than considering the OME as being the trigger.

Conclusion

It is likely that for the majority of children with OME will be short-lived without any long-term implications as they will fit the 'average' pattern. However the frequency of episodes in a younger child, even though for a short period, could impact the way in which the parent-child relationship develops. Even though the OME may resolve it could leave a legacy in the way they have bonded. Some parents may not have the personal and social support that can help them through such a period. Being aware of the possible implications of OME can help professionals to identify helpful strategies, by situating the difficulties in the condition rather than the parent or child.

For those children with ongoing OME, there is benefit in professionals knowing that this condition is not perhaps as trivial as its 'commonness' would suggest. It may be effective to first consider whether the child has had recurring ear infections and hearing loss to explain the sorts of behaviours and responses described here, rather than looking for other explanations. The intermittent nature of OME can lead to a difference in the way in which the child behaves when he/she is clear and when the hearing impairment results in difficulties in being able to decipher what is said, who is saying it and what is meant. Such inconsistencies in behaviour may be misinterpreted in their causation.

Considering the same behaviours and reactions through a different view can lead to different conclusions. OME hearing impairment is highly invisible, exacerbated by its intermittent nature. Young people with OME and their parents would be greatly helped by increased awareness of the complexity of the condition.

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