Sensory Effects of Acquired Brain Injury

Meningitis and septicaemia can be a cause of acquired brain injury (ABI). This is an injury to the brain that has happened after birth.

This fact sheet includes information about problems with hearing, sight, taste, smell and touch.

Acquired brain injury (ABI) can disrupt any part of the sensory system that transmits and processes sensory information: hearing, sight, smell, taste and touch. By combining and interpreting information from the different senses, the brain is able to provide the body with a multisensory experience. The sensory systems are interrelated with many parts of the brain and this explains why it is relatively common to have some sensory disturbance after ABI. Some problems are temporary, whilst others will be permanent.

Hearing loss

Hearing difficulties are the most common severe after effect of meningitis. The vast majority of hearing loss caused by meningitis is due to damage to the inner ear and this can also cause balance problems and tinnitus. You can find more information in the 'Hearing loss and tinnitus', and 'Balance problems' fact sheets.

Sight loss and visual disturbances

ABI can affect both vision (the ability to see) and visual perception (the ability to understand what is seen). The visual system is extensive and spreads from the eyes along visual pathways through the brain to the occipital lobes. ABI can cause problems with some, or all, of the following:

- Focus change – looking quickly from near to distance without blurring.
- Tracking – the ability of the eye to move smoothly across a page of print, or to follow a moving object.
- Binocularity – using information from both eyes in a co-ordinated way.
- Fixation – locating and focusing on a series of stationary objects quickly and accurately – this is very important when reading.
- Visual fields – the total area that can be seen without moving the eyes or head.
- Visual acuity – the ability to see at varying distances.
- Visual perception – how visual information is interpreted in the brain.
- Visual neglect – neglect of visual information located on one side of the body.
- Diplopia – double vision.

It is easy for visual problems to go undetected and common for children who experience them to be unaware of the extent of their visual limitations, or to try and ignore them. Some, but not all, visual problems can be corrected by spectacles. If you notice any of these difficulties it is important to report them to your GP and ask to be referred to an eye specialist.

The ability to taste, smell and touch is usually only affected when there is severe brain damage. This is rare following meningitis or septicaemia and would usually be diagnosed before discharge from hospital.

Taste and smell

The ability to smell and taste are interconnected and both may be affected by ABI. Usually, the severity of the brain injury will influence whether these problems are temporary or permanent. Different eating habits may develop after having meningitis; this could be explained by changes to these senses.

Touch

After ABI, children may experience difficulties with touch, such as identifying objects by feeling. They may also have problems appreciating temperature or pain, which can have an impact on a child's safety.

Sources of information

http://www.braininjuryhub.co.uk/information-library

Walker S & Wicks B, 2005, Educating children with acquired brain injury, David Fulton Publishers, Abingdon, UK

https://www.headway.org.uk/Physical.aspx

Resources

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More information can be found at meningitisnow.org and meningitis.org