Meningitis Research Foundation

Meningitis now

Physical 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 movement and co-ordination problems, headaches, fatigue, epilepsy, hydrocephalus, incontinence, and appetite or weight changes.

Movement and co-ordination problems

In the first few weeks after recovering from meningitis or septicaemia, many children have subtle problems with co-ordination, and these may be temporary problems that get better quickly, or they may be signs of ABI. It is important to talk to your paediatrician about these problems if you notice them before your child's 4-6 week review.

Injury to the brain can cause difficulties with movement, posture and co-ordination;

- **Gross motor skills** are movements involving the whole body such as running, walking and jumping
- **Fine motor skills** are smaller movements, mainly involving the hands, such as manipulating and holding objects e.g. writing, using a knife and fork

Some children can be left with muscle weakness or paralysis on one side of the body (hemiparesis or hemiplegia), but with appropriate rehabilitation and support such as specialist physiotherapy and occupational therapy, most will recover enough motor skills to become independent. Total paralysis, affecting all four limbs (quadriplegia), is a rare complication of meningitis.

HemiHelp is a membership organisation supporting children and young people with hemiplegia, and their families.

http://www.hemihelp.org.uk/home

The loss of ability to co-ordinate movements is known as ataxia. It can result in balance problems and feelings of dizziness. Other subtle difficulties with movement can result in tremors.

Speed of movement and reaction times can also be affected and this can have a significant impact on sporting activities or playing musical instruments.

Muscle tone enables the body to stay in certain positions and make planned, co-ordinated movements. ABI can affect this tone and cause the muscles to be abnormally tight (contractures) or abnormally loose, resulting in movement difficulties and discomfort.

Most moderate to severe movement problems will be evident before a child is discharged from hospital. It is important that a plan of care, including the provision of aids and equipment, is in place before hospital discharge. Physiotherapists and occupational therapists will be involved with this. Other problems, such as slower reaction times, may not be immediately obvious. It is important to report any concerns to your GP or paediatrician.

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Meningitis in the neonatal period can be a rare cause of cerebral palsy, a general term used to describe a number of neurological conditions that result from damage to the cerebrum either before, during or soon after birth. Children with cerebral palsy have difficulties with controlling muscles and movements as they grow and develop. Depending on the precise area of the brain that is affected, there may be other difficulties which become obvious during development; for example, with vision, hearing, learning or behaviour.

Scope is an organisation which supports disabled people and their families by providing practical information and support.

http://www.scope.org.uk/help-and-information/cerebral-palsy

Headaches

Headaches are commonly reported amongst children in the immediate recovery period following meningitis. Headaches are also a frequently reported after effect of ABI. They usually reduce over time, but it is very important to monitor them and report changes in severity to your doctor so that they can be investigated. Continuous or intermittent headaches will have a significant impact on a child's ability to concentrate and can increase feelings of frustration and irritability.

The following document explains what treatment, information and support you and your child, if they are over 12 years, should receive from the NHS:

http://publications.nice.org.uk/headaches-ifp150/about-this-information

Fatigue

Children recovering from an illness as serious as meningitis or septicaemia often feel very tired at first. Fatigue (extreme physical and/or mental tiredness) and sleep problems are also a common part of the recovery process following ABI. Although they often improve over time, they can also have a long term impact on a child's well-being and ability to function both at school and home

- Energy levels for mental and physical activity can rapidly decrease
- Fatigue can have a significant impact on learning and can cause irritability, anxiety and depression
- Medication for seizures or pain relief for headaches can also cause fatigue and reduced energy levels
- A staged return to school and a flexible attitude to the varying needs of the child will help to improve performance and increase emotional well-being
- A structured day, with time planned for both activity and rest sessions, will help the child cope with the demands of school and leave them with enough energy for social or sporting activities after school
- The impact of fatigue is often poorly understood and this can lead to the child being thought of as lazy or disruptive.

The Brain Injury Hub, written by The Children's Trust, contains an extensive amount of information on all aspects of brain injury, including fatigue:

http://www.braininjuryhub.co.uk/information-library/fatigue-and-tiredness

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Some parents have reported that complementary therapies have been helpful for after effects of meningitis or septicaemia such as headaches and fatigue. A complementary therapy is one that can be used in addition to, or alongside, conventional medicine to complement the treatment provided by doctors and other health professionals. They are not an alternative to medicines or therapies prescribed by your child's doctor.

Complementary therapies aim to treat the patient as a whole, rather than symptoms in isolation. They include acupuncture, reflexology, osteopathy and therapeutic or aromatherapy massage. It is always advisable to talk to your child's GP or to your child's specialist before starting a course of treatment. NHS Choices provide further information about acupuncture

http://www.nhs.uk/conditions/Acupuncture/Pages/Introduction.aspx

Seizures and epilepsy

A seizure happens when there is a burst of electrical activity in the brain and what happens during a seizure depends on where in the brain this burst of activity begins and how far it spreads.
Seizures can be a symptom of meningitis and they can continue during the acute stage of the illness. Anticonvulsant medication will be used to control these seizures.

Children who experience seizures during the first few days of infection are more likely to develop epilepsy, and in most cases, epilepsy that follows meningitis occurs within five years of the acute illness [(1)].

Epilepsy is defined as a tendency to have repeated seizures that start in the brain and is usually only diagnosed after someone has had more than one seizure. There are different types of epilepsy so treatment and advice will vary.

If your child has epilepsy, it is important that their condition is regularly reviewed by a specialist doctor (a neurologist) and/or nurse.

The following document explains what treatment, information and support you and your child should receive from the NHS:

http://publications.nice.org.uk/the-diagnosis-and-management-of-epilepsy-in-children-young-people-and-adults-ifp137/about-this-information

Further information:
http://www.epilepsy.org.uk/info/children/children-with-epilepsy

1. Wang KW et al. The significance of seizures and other predictive factors during the acute illness for the long-term outcome after bacterial meningitis. Seizure 2005; 14(8):586-592

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

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Hydrocephalus

Hydrocephalus is a build-up of fluid on the brain. The brain constantly produces new cerebrospinal fluid (CSF) and usually, old fluid is released from the brain and absorbed into the blood vessels. However, if this process is interrupted, the level of CSF can quickly build-up, placing pressure on the brain. Hydrocephalus is a rare after-effect of meningitis. It happens when the flow of cerebrospinal fluid (CSF) around the brain and spinal cord becomes restricted, putting extra pressure on the brain. It may be a short term complication while the child is ill with meningitis, but it can persist during and after the recovery stage. If the build-up of fluid is temporary, it may be treated by monitoring and occasional lumbar puncture. If it is permanent, a shunt will need to be surgically inserted.

Surgery involves implanting a thin tube, called a shunt, in the brain. The excess CSF in the brain runs through the shunt to another part of the body, usually the abdomen. From here, the fluid is absorbed into the blood stream. The shunt has a valve inside it to control the flow of CSF and to ensure it does not drain too quickly. The valve can be felt as a lump under the skin of the scalp. As the shunt is a mechanical device, it will need to be checked regularly by a neurosurgeon to make sure it is working properly. You will be given advice about how to check for problems and who to contact if you are worried about your child.

Further information:
http://www.nhs.uk/Conditions/Hydrocephalus/Pages/Introduction.aspx

Shine is a registered charity, which helps families and individuals affected by spina bifida and hydrocephalus.

http://www.shinecharity.org.uk/bennybear

Incontinence

Bladder and bowel control involves both physical and cognitive skills. Although uncommon, and usually in conjunction with severe brain damage, continence can be affected by meningitis or septicaemia. Both medical and behavioural assessments are often needed to ensure that the child receives the appropriate physical and emotional support.

ERIC is a charity which works to improve the quality of life of children, young people and their families in the UK who suffer from the consequences of childhood continence, to help them manage or overcome these problems.
http://www.eric.org.uk/

Appetite and weight change

Weight loss or gain can sometimes occur after meningitis or septicaemia:

- Reduced food intake and swallowing difficulties may cause weight loss in the acute stage of the illness or injury
- Increase in weight can result from damage to the part of the brain that controls appetite
- Weight gain is often associated with loss of mobility

A medical assessment with referral to specialist health professionals, such as a dietician, may be needed.

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

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