

A Guide for Patients Following Traumatic Brain Injury (TBI)

What is a Traumatic Brain Injury (TBI)?

A Traumatic Brain Injury refers to any form of injury to the brain that has occurred which is the result of a severe blow or jolt to the head and is most commonly caused by road traffic incidents, falls and assaults. It is overwhelming and frightening both for the person who has suffered the injury and their carers. Every brain injury is likely to be different, making it difficult to predict the effects on a particular person.

Common Types of TBI

The type of TBI caused is dependent on the location of the damage within the brain and the structures involved. These are classified by different terms; you could have one or more of these:

Subdural Haematoma (SDH): Bleeding in the brain between the dura mater and the skull. These bleeds are further subdivided into:

Acute Subdural Haematoma (ASDH): Fresh blood which put pressure on the brain.

Chronic Subdural Haematoma (CSDH): This represents old liquefied blood, which usually takes a few weeks to form after the initial injury. It is more

Sub-arachnoid Haemorrhage (SAH): SAH is leakage of blood from a damaged blood vessel beneath the arachnoid membrane that covers the brain.

Intracerebral Haemorrhage (ICH): ICH is where blood bursts into the brain tissue and causes damage to the brain.

Extradural haematoma (EDH): Blood that forms between the inner surface of the skull and outer surface of dura mater. It is frequently associated with a skull fractures, and more common in the younger patients.

Diffuse Axonal Injury (DAI): Widespread bleeding in various areas of brain tissue.

Contusions: Small bruises to brain tissue caused by leakage of small blood vessels.

Contrecoup Injury: Injury/bleeding to the brain that occurs directly opposite to the side of impact.

Skull fracture: break in the cranial bone (skull), caused by impact or a blow to the head

How is a brain injury diagnosed?

Initially a history of how the injury would have occurred will give the team valuable information to help them obtain a diagnosis (this can come from family, friends, or witnesses if you were not able to recollect the events on admission), and they will conduct a full examination.

Specialist investigations:

Computerised Tomography (CT) Scan

The most commonly used investigation in brain injury. It provides detailed images of the skull and brain using a series of multiple x-rays which a computer then converts into a 3D image. CT scans are particularly good at showing blood in and around the brain, and identifying any swelling within the brain.

Magnetic Resonance Imaging (MRI)

This investigation uses magnetic fields, radio waves and a computer to produce detailed pictures of the brain and other cranial structures. It can detect more subtle changes within the brain and soft tissues.

CT Angiography (CTA) or Magnetic Resonance angiography (MRA) Uses an iodine-rich contrast material and a CT or MRI scanner to provide very detailed images of the brains blood vessels to look for abnormalities.

Whilst in hospital you will have your observations monitored regularly, you may have your urine output measured, and you will be checked for any fluid leaking from your ears or nose.

Treatment of Brain injuries

Treatment options vary depending on the severity of the brain injury:

Conservative management:

If the Neurosurgeon considers that brain surgery is not required at this time, then a period of close observation may be indicated. This decision will often depend on changing patient circumstances along with scans, and active surgical treatment may be needed later.

Surgical Intervention:

Burrhole drainage: Small holes are drilled in the skull to permit drainage of old liquefied blood (see chronic subdural haematoma). A plastic tube (drain) may also be left in place for 24-48hr to assist with on-going drainage.

Craniotomy: A portion of the skull is removed to allow access to the brain to perform the surgery, and the bone is secured back in place at the end of the operation using small metal plates and screws.

Craniectomy: When the brain is very swollen (either before, or at the time of surgery) it may be necessary to remove a large portion of skull to give the brain more space. If appropriate, the skull may be reconstructed at a later date using metal or complex plastics. This procedure is called a cranioplasty.

Other Interventions

Induced Coma

A patient with a low GCS or raised Intracranial pressure (ICP) may need to be placed in a deep state of unconsciousness (Induced Coma) to give the brain the best chance to rest, heal and recover. Sedatives are used; these types of medication can help to relax the brain and prevent ICP rises.

Ventilator

Is a machine that uses positive pressure to mechanically breathe for patients that are unable to breathe on their own when placed in an induced coma. It delivers accurate levels oxygen to ensure the patient has adequate enough oxygen levels to allow the brain to heal.

Intracranial Pressure (ICP) monitoring

If a TBI has caused bleeding or swelling inside the skull the delicate structures of the brain can be damaged. The pressure inside the skull can be measured by drilling a small hole into the skull and placing a thin wire, connected to a monitor, which gives a constant reading of ICP. This measurement is used to determine if the swelling is subsiding or if an operative treatment is required to relieve the pressure.

External Ventricular Drain (EVD)

An EVD system may be inserted which uses a catheter (a thin, plastic tube), placed in the ventricle of the brain. This is connected to a drainage system outside the body; draining off excess Cerebrospinal Fluid (CSF) or blood that is causing increased ICP.

Which health professionals may be involved in your care?

Neurosurgeon: A specialist doctor who performs brain and spine operations.

Neurologist: A doctor who specialises in neurological conditions but does NOT operate.

Intensivist/Anaesthetist: A medical specialist who manages seriously ill patients within various settings, including intensive care.

Head injury Advanced Practitioner: A health professional with specialist interest and experience in a particular condition or conditions.

Trauma Therapy Co-ordinator: A specialist who assesses your therapy and rehabilitation needs.

Occupational Therapist: A specialist health professional who treats people after brain

injury, to help improve everyday activities, including thinking skills.

Physiotherapist: A specialised health professional who treats people following brain injury, to help improve physical activity, including strength or balance.

Speech and Language Therapist: A specialist health professional who assesses, plans and treats people with communication, speech, or swallowing problems.

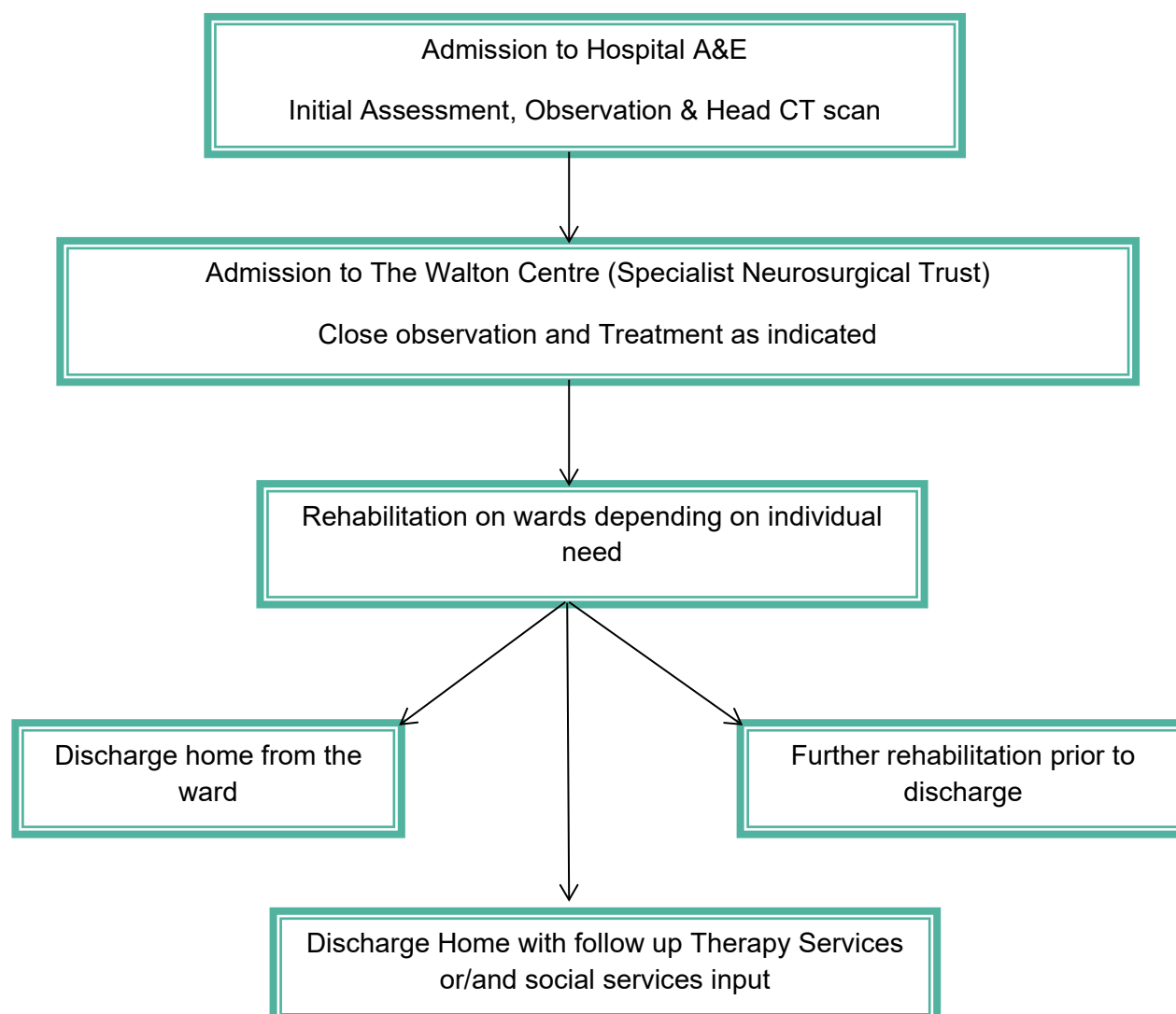
Dietician: A specialist health professional who assesses the nutritional needs of patients to provide practical advice and treatment that will aid their recovery.

Rehabilitation Consultant: A specialist doctor with an interest in the

longer term recovery of patients with a neurological deficit or who may have complex rehabilitation needs.

Pharmacist: A specialist that review your medications.

Inpatient pathway of care



What can happen after a brain injury?

The kinds of difficulty a person can develop after a brain injury and the severity of these can vary widely. Some of the common problems are described below.

Physical Effects

There is a wide variety of physical affects that can occur from a TBI.

Visual disturbances, hearing loss, speech difficulties, loss of movement in specific limbs (weakness or paralysis), sensation loss, loss of co-ordination, reduced balance, impaired mobility, on-going headaches and tiredness.

Cognitive Effects

These are impairments to your thinking and mental abilities, such as reduced ability to concentrate, difficulty with memory and recall. Other changes may be more significant than the physical disabilities; these include reduced attention, slower information processing, and impaired insight/empathy, difficulty recognising faces and objects, and language problems. You may not recognise that there is anything wrong, however family and staff will.

You may initially experience a period of Post Traumatic Amnesia (PTA). You may be disoriented and unable to retain information, your behaviour may be unusual and difficult.

Epilepsy or “fits”

Rarely people who have had a TBI develop epilepsy causing “fits” or “seizures” and the small risk is usually in the first year after the injury. One seizure does not mean you have epilepsy. Epilepsy is treated with medication and you will normally be reviewed by a Neurologist to ensure appropriate management. If you have had seizures you have to inform the DVLA and cannot drive until advised.

Emotional Problems

Following an injury to the brain it is common to display emotions such as anxiety, depression, or anger. However, such feelings can become problematic when the emotions are intense and frequently occurring this can cause devastating effects to yourself, family and friends.

Specific treatments may be useful, a combination of psychological support and medical input may be indicated. Learning about the physical effects of emotions, or recognising the situations that trigger them, is key to managing some of the difficulties. There are also certain strategies for aiding mental relaxation, and sometimes physical activity itself can help. Remember that tiredness can make any person more emotional, and a good sleep may provide some much needed relief.

Various personality changes can lead to becoming more impulsive or disinhibited, and occasionally someone previously known as quiet and reserved can seem strangely jokey, inappropriate, or provocative. For those who knew the person before the brain injury these changes can be some of the most difficult.

Symptoms may last for days, weeks, or even months.

Coping with the effects of a brain injury

Below is some general advice. Remember that every brain injury is different so every recovery is different.

- **A different person**

After a brain injury you may appear very unlike your “old self”. You and others might find that characteristic mannerisms and behaviours do not appear to exist anymore. Such changes can be subtle or very obvious depending on the nature of the injury. Usually there are one or more features typical of the person that makes it reassuring they are still there, and over time more of the person may return.

- **Anger**

It is not uncommon to experience a period of anger and/or frustration after brain injury. For those around you this can be very distressing, and it can be difficult to decide the best way forward. It can help to learn what is causing the anger, so that you are able to avoid it in future. Family or friends may learn to identify when you are displaying these symptoms/emotions, and you will be encouraged to talk about it. Being able to listen in a non-judgmental way can be helpful. Family and friends should realise that sometimes it is best to give you space at these times before discussing this further with you to identify any emotional causes/triggers.

- **Family and loved ones**

The effects of a brain injury can take its toll on those who are close to you. Feelings of devastation, disbelief, guilt, and stress are very common, and coping with life adjustments may be exhausting. It can help to learn about what has happened overall, as well as obtaining practical and emotional support, and your local brain injury services should be able to help with this. You can help your loved one by giving them plenty of time, explain clearly what you mean in conversation, repeat instructions/information, allow them to try and complete tasks themselves.

- **Understanding the changes**

A brain injury can result in the loss of various skills. People worry about leaving someone alone, in case they come to harm from doing things they can no longer manage. If you are unable to fully understand your problems you may perform tasks that are unsafe. In view of this family and friends may need to ask someone else to stay with you. It can also help if family and friends sometimes remind you or gently draw your attention to these potentially dangerous situations.

- **Advocacy**

An advocate is someone who can act on a person’s behalf in various situations. They may assist the brain injury patient with help filling in forms, or being accompanied to meetings for

practical support.

Charities such as: Headway and The Brain Charity will be able to offer you advice and give you further information.

Sometimes due the BI patients are unable to make informed decisions about future treatment, or discharge home. They may not understand why they are in hospital and attempt to leave or became very agitated. In some circumstances it may be required for staff to apply for a Liberty Protection Safeguards (LPS) this will allow family and staff to act in a person's best interests and prevent them from leaving the hospital.

Going home and everyday activities

Driving

If you hold a driving licence you are **legally required** to notify the Driver and Vehicle Licensing Agency (DVLA) following a TBI.

Failure to do so can result in a fine and also makes your insurance invalid.

You will not be able to drive until you have received DVLA approval and your Doctor has confirmed you are recovered. This can sometimes be around six months or longer.

Flying

It will be up to your Consultant when you are able to fly, but if you have had surgery then you will probably be asked to wait at least 6 weeks before you fly.

Returning to work

The best time to return to work will depend on your job and the type of brain injury suffered. Generally it will be advisable to talk matters over with your employer first, even if you feel fine and have no specific problems. This is often because your overall energy levels may be reduced, and a phased return to work might be more sensible. Your employer has a duty to be supportive of your attempts to resume employment, and usually it is in their interests to help you adjust to any new circumstances. The Brain Charity will provide help and support if you are having problems returning to work; their number is printed on the back of the booklet.

Education

After a brain injury there can often be difficulties with returning to education. Modifications in the role or even type of education may be necessary. Continuing education or employment can be very important for developing skills, confidence and self-worth, and every effort should be made to facilitate this.

Sexual activity

You can resume normal sexual activity as soon as you feel able.

Alcohol

After a brain injury the brain becomes more sensitive to alcohol. In addition if you drink alcohol you may experience more headaches, along with a possible increased risk of seizures (fits). It is therefore sensible to abstain from any alcohol for at least 4 weeks - 4 months post-injury, and do not drink if still experiencing symptoms and then reintroduce it slowly if you choose to. Most people find that they are not able to tolerate large amounts of alcohol.

The government suggests that women do not drink more than 2-3 units each day and men no more than 3-4 units each day.

Removal of Sutures/Clips

Removal of stitches/clips normally in 7-10 days, as advised by consultant. Able to wash hair after 48hrs with mild/baby shampoo, just let water gently run over head and then pat dry.

Sport & exercise

Exercise following TBI is fine to do and good for healthy living for the future. However initially activities should only be performed at a moderate intensity and gradually built up. Be aware that your energy levels will be lower than previously and you will tire a lot quicker than normal.

It is not advisable to do any strenuous activities such as running a marathon for at least 3 months. Strenuous gym exercise (like lifting weights) should also be avoided as this can increase your ICP (intracranial pressure-pressure inside your head.)

It is ok to commence swimming once your wounds have fully healed. However, it is advisable to go with someone in the early days, especially if there has been a history of seizures.

You should avoid contact sports like rugby, football and martial arts until discussing these options with your Consultant, as the risks of another head injury may be very serious.

Later effects

You may initially present with no symptoms or difficulties but may experience changes weeks to months following your injury. For example low mood, motivation and fatigue. These symptoms may affect family relationships and how you engage in day to day tasks. Some people also experience dreams or flashbacks of the incident when their brain injury occurred. If you experience any of these symptoms following your discharge home please contact your GP.

For your information:

Name: _____

Consultant: _____

Follow up & services referred to: _____

Appointments: _____

Notes:

The Walton Centre Contact Details

For any emergency see your GP or go to your local Accident and Emergency department.

Walton Centre switch board: 0151 525 3611

Head Injury Advanced Practitioner 0151 556 3086

Trauma Therapy Coordinator 0151 556 3863

Specialist Spinal Nurses 0151 529 8853

For practical advice our Patient Experience Team can be of assistance. Contact the team on 0151 556 3090/3092, or email patientexperienceteam@thewaltoncentre.nhs.uk

Where to get further help and support:

NHS Direct: Dial 111 for advice on medical queries that are not a 999 emergency.

Headway: (the brain injury association offer practical and emotional support) Free phone 0808 800 2244 or visit www.headway.org.uk

Alex Power is the Headway Acute Trauma Support Nurse for the Northwest, you can contact her on 07833 365 858 or e-mail: hats-nw@headway.org.uk

The Brain Charity: Norton Street, Liverpool L3 8LR, Telephone 0151 298 2999

Road Peace (aims to support emotionally and practically the injured victims of road traffic accidents) : 0845 4500 355 or www.roadpeace.org.uk

D.V.L.A. Driver Vehicle License Authority, Drivers Medical Group, DVLA, Swansea, SA99 1DL 0843 515 8104

Medical Enquiries: 0870 600 0301

NHS Free smoking helpline: 0800 0224 332 www.smokefree.nhs.uk

Advice on Alcohol: www.drinkaware.co.uk or www.drinkingandyou.com

Advice on Drugs: www.talktofrank.com

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