Birmingham Liver
Biomedical Research Unit

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Liver F.O.C.U.S

Highlighting research whilst cutting through the medical jargon! Liver Focus is produced by the NIHR Birmingham Liver BRU Patient and Public Involvement Panel, Centre for Liver Research.

From 24 hours to live, to World Transplant Athlete

How two liver transplants, collapsed lungs and cancer inspired a remarkable and focussed person to live life to the full.

Looking at Su Tarling now, an enthusiastic, vibrant person with a slim athletic build, you wouldn't believe that at one point in her life she was given less than 24 hours to live and was desperately waiting for news as to whether a liver donor had been found.

Su was a PE teacher and head of year at a local School and just after returning from maternity leave she was teaching a trampoline class when one of her pupils said *"miss, you look a bit yellow"*. Su put it down to tiredness and carried on as normal.

Gradually her symptoms became worse, she was falling asleep mid-sentence and after numerous tests was eventually told she was suffering with an unknown virus and an urgent liver transplant was required. She was given just 24 hours to live.

That night Su was too scared to close her eyes in case she never woke up and saw her baby or family again. Miraculously a donor match was found and Su received her life saving transplant at the Queen Elizabeth Hospital Birmingham (QEHB).

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The transplant went well but 18 months later a further one was needed due to hepatic artery thrombosis. This was also undertaken at the QEHB and was successful, but the experiences had a profound effect on Su.

"I had never given transplants a second thought, they were things that happened to someone else. It was completely life changing and made me re-evaluate my goals and priorities. Life is too short".

Su gave up working as a teacher to focus on her family and undertake voluntary work counselling transplant patients at the QEHB.

Some years later a friend of the family and fellow transplant recipient, Mike Dorricott, encouraged Su to take part in the 2014 UK Transplant Games in Bolton. Prior to her transplants Su had always enjoyed sport and regularly played hockey, so she thought *"why not!".*

Mike also competed in the UK Transplant Games. Sadly, he passed away in April 2015 but Su said *"his inspiration will never be forgotten by myself or others that knew him"*.

In Bolton Su achieved gold in the 3km run, silver in the 10km cycle and silver in the 50m breaststroke.

If you are not sufficiently impressed with Su's determination to ensure being a transplant recipient does not restrict her life, do bear in mind the other issues she has dealt with. During the first transplant her lungs collapsed and she now has limited lung capacity. She also developed skin cancer following her last transplant, which was caused by the medication.

Sue is now 45 years old with two young children and the 2015 World Transplant Games are the next major milestone. Su's events are a 5km run, 20km cycle, 400m front crawl and 50m breast stroke — a virtual triathlon!

When asked how her health is today, and whether she realises how inspirational her story is, she simply gives a modest and understated reply:

"No, I'm not inspirational, I'm just me. These days I feel fine and have hardly noticed any difference in my daily life, apart from needing to take tablets and feeling more tired than before", although she is quick to point out that this could be because of anaemia, or all the training she has done for the World Transplant Games!

Participation in the World Transplant Games is through donations. To help support Su and other transplant patients, please visit: www.justgiving.com/Su-Tarling/

Su is a strong advocate of participation in clinical trials to help research into liver disease. To find out more email LiverResearch@contacts.bham.ac.uk

Sign up to the NHS organ donor register and save lives: call 0300 123 23 23 or go online www.organdonation.nhs.uk

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This article is dedicated to the memory of Mike Dorricott.

Results of a Clinical Trial:
Treating NASH with a drug for diabetes

Non-alcoholic Steatohepatitis (NASH) is a form of liver disease which is on the increase. It is directly related to the general population becoming obese or overweight, particularly in western countries. It is a specific type of fatty liver disease which occurs when the liver becomes damaged due to an overload of fatty deposits.

The excess of fat can lead to liver fibrosis/ cirrhosis, which is scarring, thickening and hardening of the liver and connective tissue. NASH can ultimately increase the risk of total liver failure which means a liver transplant is required, or patient death can occur.

The National Institute for Health Research (NIHR) Birmingham Liver Biomedical Research Unit (BRU) coordinated a ground-breaking clinical trial relating to NASH, which is the first of its type in the world to look at a specific drug treatment.

This trial involved the University of Birmingham and the NHS (University Hospitals Birmingham) forming collaborative partnerships with three other UK hospitals (based in Nottingham, Leeds and Hull), the Pharmaceutical industry and other academic funders/institutions.

The drug involved was Liraglutide (Victoza®) which is currently licenced for the treatment of Type II diabetes. Victoza® is a drug manufactured and licenced by Novo-nordisk and is administered in the form of an injection. The patient self-injects which means the treatment can be administered at home, directly into the stomach, biceps or other fleshy part of the body.

After 48 weeks of therapy, the livers of some patients actually started to recover from the damage caused by the fat which had been deposited within the liver and individual cells. Additionally, patients in the active treatment group showed a higher level of weight loss whilst receiving medication. Unfortunately however, after they stopped taking the medication the majority of patients started to regain the weight they had lost whilst participating in the trial.

What does this mean?

This is the first clinical trial to show the potential benefit of a medical intervention outside 'diet change and exercise'. In addition this is the first study to show clearance of NASH using a traditional diabetic licenced therapy.

The results of this study are extremely encouraging and indicate that a larger study is now warranted to prove that the drug is effective in high numbers of patients. To read the full results of this trial visit www.birmingham.ac.uk/liver.

Key researchers on this trial: Professor Philip Newsome, Dr Matthew Armstrong.
Enquiries about clinical trials: LiverResearch@contacts.bham.ac.uk

Nutritional Information for Liver Disease

by Kristina Currier and Jill Johnson, Specialist Liver Dietitians

Malnutrition is a loss of overall body tissue. It is very common in advancing chronic liver disease and can affect 80-100% of patients due to changes in the way their bodies make and use energy.

Normally when we eat, any spare energy is stored in the liver as a form of sugar to use between meals and during the night.

As the liver is responsible for co-ordinating the use of the body's energy, it is placed under substantial strain when affected by a disease.

As liver disease progresses, the liver is no longer able to make these stores of sugar, so there are no reserves left to burn as fuel. The body therefore looks to the muscle as an alternative source of sugar for a quick release.

This process is important to understand because it drains body muscle, which in turn can affect the function of the liver and make symptoms of liver disease much worse such as bleeding, confusion, jaundice and fluid retention. Nutritional treatment is designed to help relieve and support the liver.

Improving nutrition can also reduce the effects of muscle loss such as muscle weakness, fatigue, feeling cold, poor motivation, low mood and poor appetite.

To protect body muscle it is important to have small meals and snacks every two to three hours. These should contain carbohydrates such as bread, pasta, potatoes, cereal/cereal bars, crackers, rice, crumpets, scones or malt loaf. Having a carbohydrate-based supper can also provide fuel for the liver to burn overnight, allowing body muscle to be replaced.

Additionally, the body needs three to four portions of protein to replace lost muscle which can include meat, fish, eggs, beans, dairy products (milk, cheese, yoghurt) soya alternatives, nuts and seeds.

Why you may need a dietitian:

Ascites. You may retain fluid around your stomach. This can increase your body's energy and protein needs so specialist advice is required from your dietitian.

Jaundice. This can affect your fat digestion causing frequent yellow, greasy, floating stools and discomfort after eating (wind, bloating and noise). The treatment is to reduce fat intake to tolerance levels, but this can reduce calorie intake so specific advice is needed from a dietitian.

Encephalopathy. The breaking down of muscle can release toxins that the liver is unable to clear. A suitable eating pattern and adequate protein can help.

Kristina and Jill work at the Queen Elizabeth Hospital Birmingham and support patients with chronic liver disease, assess patients using muscle & strength measurements, devise tailored nutritional plans, and work with the transplant team to ensure patients are nutritionally fit for surgery.

FOCUS ON: Dr Ahmed Elsharkawy

Dr Ahmed Elsharkawy is a Consultant Hepatologist at Queen Elizabeth Hospital Birmingham. He specialises in all forms of liver disease with particular interests in the fields of viral hepatitis, nutrition in liver disease, acute liver failure and live related liver transplantation. He has been qualified since 1999.

Why did you decide to become a hepatologist?
My love for the speciality was sparked during my undergraduate degree when I did a research project in a liver unit. I was fascinated by how central to the body's functions the liver was, and how other organs were affected when the liver failed.

Why did you specialise in liver?
The liver is unique as it can repair itself. This means that as long as you can remove the injury, you can make a big impact. At the same time, the ability to perform liver transplants means you can really save lives.

What's most gratifying in your part of your job?
Seeing a transformation in someone physically and mentally following a successful liver transplant, and being able to cure someone with Hepatitis C with the newer drugs now available.

What personal qualities are needed to undertake your job?
We deal with a lot of patients at the end of their life either because they are too sick to have a liver transplant or because they are unsuitable due to other medical conditions. Although disheartening, you need to accept that sometimes despite doing your best, patients have a poor outcome.

Is medical research important?
Yes! Modern medicine would not have achieved what it has without medical research.

What advancements in liver treatments would you like to see?
A truly effective treatment for liver scarring that would reverse the effects of liver cirrhosis and reduce deaths.

What is the best piece of advice anyone has ever given you?
In monetary matters always look to those less fortunate than you. In educational matters, always look at those that are better than you and strive to improve.

How many liver transplants are you involved with each month?
I am 'on call' one week in eight. In that week I look after transplant patients in the intensive care unit and am involved in their care on the ward. On average I will see 3-5 new transplant patients during that week.

What's the most memorable thing that has ever happened to you?
The birth of my children! The most traumatic/wonderful days of my life.

If you were 16 again, what other career would you choose?
A drummer in a rock band – although my musical skills are abysmal!

Are you a registered organ donor, and how would you encourage someone to register as a donor?
Yes I am registered! There is nothing more precious that you could do than give the gift of life. The impact you could make on several individuals by donating your organs is truly magical.

Keeping YOU Informed About Research

PPI member, Ben

Ben Lowsley-Williams is a member of the Birmingham Liver Patient and Public Involvement (PPI) Panel. He contracted Hepatitis C at the age of 17 and despite participating in a clinical trial 20 yeas ago, his Hepatitis C remained and over time his liver deteriorated. Thankfully, research has developed in leaps and bounds since then, and following participation in the 'Solar' clinical trial in 2014-2015, which was successful, he is now completely free of the Hepatitis C virus.

Ben decided he wanted to give something back to the dedicated nurses and doctors who had helped him over the years so when he was asked to join the PPI panel, he jumped at the chance.

Ben said *"it's so easy to do, I can participate via email at a time convenient to me and even do the work via my phone. It doesn't require a lot of effort and it is so interesting to hear about future trials as liver research is something very close to my heart"*.

Would you like to join our PPI panel?

Members work with us in a range of ways such as helping prepare items for this newsletter and advising on the wording of patient information sheets. You don't need any experience or special skills, just an interest in liver disease. For more information on joining please email LiverResearch@contacts.bham.ac.uk, or visit www.birmingham.ac.uk/clr-ppi. The time commitment is about 2 hours per month from your own home via email, and attending two meetings a year in Birmingham.

The University of Birmingham liver research team hold many free events which the public are invited to. Details of all future events can be found on our website: www.birmingham.ac.uk/clr-ppi

Everything you ever wanted to know about the liver - from the comfort of your own home

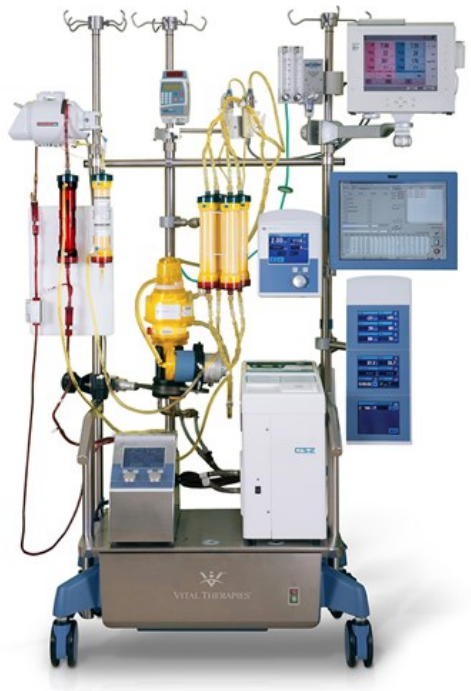
Presenters Dr Lalor & Dr Stamataki

Last year Dr Trish Lalor and Dr Zania Stamataki introduced you to the liver via a free online course suitable for anyone and everyone, regardless of your level of knowledge of the liver.

In anticipation of a sequel being available online next year, which will be about transplantation, the original course will be run again in October 2015. Enrolment opens in September for this completely free course! Registration link: www.futurelearn.com/courses/liver-disease

Clinical Trial Update:
Pioneering system to support liver recovery

The Extracorporeal Liver Assist Device, or ELAD for short, is an experimental machine designed to help support a patient's own liver whilst it recovers from an injury.



It is a pioneering system which has been mostly studied in patients with alcohol-induced liver disease.

ELAD consists of an ancillary delivery system attached to four cartridges containing approximately one pound of live human liver-derived cells.

During treatment, blood is drawn from the patient through a central venous line and the plasma is then separated from the whole blood. The patient's plasma then passes into the four cartridges where it contacts the human liver-derived cells through fibers which allow appropriate two-way transfer of toxins, metabolites and nutrients, mimicking liver function.

ELAD is in some ways similar to a kidney dialysis machine but it is a metabolic process, consisting of cells, not a filtrating process like dialysis.

The effectiveness of ELAD in patients with alcohol-induced liver injury was recently studied in a large multicentre and multinational clinical study. 203 patients from around the world were randomised and received either standard care, or three-five days on the ELAD system.

The study was designed to look at survival at 91 days. Four patients were recruited in Birmingham, which is the second highest recruitment number of any European centre.

The company (Vital Therapies, Inc.) has stated in press releases that it expects to release topline results sometime towards the end of 2015.

QUICK FACTS:

In 2014 the Queen Elizabeth Hospital Birmingham celebrated it's 4000 liver transplant, the first took place in 1982 by pioneering surgeon Prof Paul McMaster.

Many people still associate liver disease with alcohol. Our public engagement team work tirelessly to re-educate that 'it's not just alcohol'.

Liver disease is the 5th biggest killer in England and Wales. It kills more people than diabetes and road deaths combined.*

Leading clinicians at the Queen Elizabeth Hospital Birmingham work closely with expert scientists at the University of Birmingham to undertake revolutionary research into all types of liver disease. For decades they have been at the forefront of liver research conducting clinical trials and advancing the search for drugs, treatments and therapies to treat liver disease. **Their work is world-renowned**.

**Source: British Liver Trust 2015*

Our grateful thanks to Su Tarling, Kristina Currier, Jill Johnson, Ben Lowsley-Williams, Dr Ahmed Elsharkawy and Vital Therapies for their contributions to this issue.

CLR Centre for Liver Research

This booklet was produced by the NIHR Birmingham Liver BRU, Centre for Liver Research, University of Birmingham and Queen Elizabeth Hospital Birmingham. If you have any queries please email Liverresearch@contacts.bham.ac.uk or visit www.birmingham.ac.uk/liver

Useful Contacts

Queen Elizabeth Hospital Liver Transplant Support Group: Tel 01902 679 333, or visit www.uhblsg.org.uk.
British Liver Trust website: www.britishlivertrust.org.uk
PSC Support Groups: www.pscsupport.org.uk/support-groups-transplant-units

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