Abdominal (tummy) pain research in Crohn's and Colitis – Prof Qasim Aziz

Pain can have a significant effect on a person's quality of daily life. Research into managing pain is important for our community because:

- More than 7 in 10 people with Crohn's and Colitis experience pain at some point.
- Around 4 in 10 people will experience pain, even when in remission. This is when you feel better because your Crohn's or Colitis is being controlled well.

Why does pain occur with Crohn's and Colitis?

Pain can be caused by:

- Inflammation in the gut, leading to tissue damage
- Narrowing of the gut, known as strictures, can cause blockages
- Spasms in the gut

These symptoms cause pain signals to be sent from the gut to the brain. Pain inhibitor signals are sent from the brain through the spinal cord to reduce the pain experienced. This process is called Gating.

Why do some people experience long-term, known as chronic, pain even when their Crohn's or Colitis is well controlled?

Pain can be experienced even when inflammation in the gut has gone. If there has been very severe inflammation and damage to the gut, pain nerves can become permanently sensitised. This means there is memory of pain in the nerves. They remain sensitive and continue to send pain signals at a higher rate than they usually would.

There are lots of factors involved with pain in Crohn's and Colitis, which can make it hard to research and understand.

Professor Aziz's research

There is no clear reason why some people have chronic pain and others don't. Professor Aziz and his team want to investigate the different things that contribute to pain and why each person responds differently.

Researchers know that the brain and gut communicate through:

- Nerves
- Hormones
- The immune system

Professor Aziz and his team are researching how things like inflammation change the communication between the brain and the gut. This could help us understand why some people experience chronic pain. It could also help to find better ways to manage pain.

To do this, they are looking at how the brain and the gut communicate in a large number of people.

The aim of their research is to:

- Understand the reasons why some people with Crohn's or Colitis experience long-term pain.
- Take tissue samples, known as biopsies, to study what is happening in cells.
- Explore how pain affects quality of life.
- Create a database of patient information to help further research into long-term pain in Crohn's and Colitis.

To investigate pain, Professor Aziz and his team have split their work into different stages, known as ‘work packages’.

Work package 1: Monitoring patients over time.

Researchers will follow newly diagnosed Crohn’s and Colitis patients for three years. This is called a longitudinal study.

They will record:

- Pain levels
- Disease activity
- Mental health
- Physical health

Researchers will look at how these change during the three years, including how people are affected when in a flare-up or in remission.

Work package 2: Analysing biological samples

Researchers will take:

- Blood samples
- Samples of poo, often called a stool sample
- Tissue samples, known as biopsies, from within the gut

Researchers will check these samples to look for changes in bacteria, chemicals and the immune system.

You can learn more about different tests and samples on our website Tests and investigations (crohnsandcolitis.org.uk)

Work Package 3: Investigating pain signals

The information collected in work package 1 and 2 will be used to understand how pain happens in the body.

In a laboratory, researchers will look at how inflammation leads to pain. This will help them look for new treatment options.

Work package 4: Sharing the Data

Researchers will create a special database called a biorepository. This will store all the data collected. This data can be shared with other researchers. Other researchers can use this information for their own research.

Other study details

Researchers will follow 150 newly diagnosed patients. Every six months they will be asked to complete questionnaires and the researchers will take biological samples. They will record this data to look for changes over time.

Researchers will also be collecting data from 2,500 patients at a single time-point. This is called a cross-sectional study. This data will be collected by questionnaire because it would be very difficult to collect biological samples from this many people.

Researchers will look at all this data and see if they can work out a model that can predict who will develop chronic pain.

This research is an early-phase study. This means the researchers will use the information they learn to develop future research studies about pain and Crohn's and Colitis.