

An update on innovative stroke treatment



Dr Sanjeev Nayak

Consultant Neuroradiologist at University Hospitals of North Midlands NHS Trust

Dr Sanjeev Nayak speaks to Oruen for this expert interview.

Dr Nayak earned his Membership of Royal College of Physicians (MRCP) and Fellowship of the Royal College of Radiologists (FRCR) after graduating from India. He undertook further higher dual certification in Diagnostic and Interventional Neuroradiology in Europe under the European Union of Medical Specialists (UEMS) and completed an additional fellowship in Stroke Intervention from Austria. He brought back the skills he acquired in Europe and helped set up the first UK 24/7 Mechanical Thrombectomy service at the Royal Stoke University Hospital, Stoke-on-Trent which became one of the leading centres for minimally invasive stroke thrombectomy in the United Kingdom.

The Mechanical Thrombectomy service for stroke developed by Dr Nayak in the UK has saved the lives of many patients who would have otherwise died or sustained permanent neurological deficits. In addition to the lives saved, this service has resulted in cost savings to the NHS that runs into millions of pounds, by preventing or minimising stroke disabilities.

Dr Nayak has authored national QIPP and thrombectomy documents with NICE and other UK national authorities. He has a passion for clinical research and has also been involved in numerous thrombectomy device developments. This has led him to win the prestigious The Sun Newspapers "Who Cares Wins" award for "Ground-breaking Pioneer and Discovery" following a nomination made by one of his patients.

Dr Nayak has been recognized by his peers and his patients for his outstanding achievement in establishing the service which has expanded under his leadership to cover a wide region including Midlands, Shropshire, Cheshire and Wolverhampton. Having been nominated for 19 national awards in various categories of BMJ and HSJ awards (2012-2019), he also won the prestigious "Windrush70 Award for Clinical Excellence" in 2018 which was followed by an invitation to 10, Downing Street, to meet the Prime Minister. Dr Nayak was hailed by the NHS in 2018 as one of "health and care's top 70 stars" (voted no 2 in the entire NHS) for his efforts to get Mechanical Thrombectomy in stroke widely adopted.

Dr Nayak has also founded various national training courses and is strongly involved in medical education. He has developed courses through numerous new innovative teaching modules and has a strong belief for evidence-based practice with a motto of "saving lives through excellence" and "achieving excellence through education".

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Since COVID laws have become relaxed, has there been an influx of patients visiting the hospitals & how have you been able to manage this?

There was a significant slowdown when the pandemic began in March 2020, people were then afraid to come to the hospital and people didn't want to come to the hospital because they feared that they would get COVID, or for various other reasons where we saw a significant drop in patient numbers during the beginning of the pandemic (March 2020). However, over time, there were positive campaigns to make people aware that they should go to the hospital if they have stroke like symptoms and the situation has since improved. Now even though the laws have been relaxed, we didn't see (from a stroke thrombectomy/aneurism perspective) a significant influx of patients recently to answer your question. But yes, previously, there was a reduction in patient numbers which normalised after a period of 1-year in 2021, things came back to normal. I have not seen an increase in stroke thrombectomy/aneurism patient numbers recently because of the total relaxation of the COVID regulations. Patients are more aware that they should come to the hospital after the previous campaign and they have been visiting hospitals if they needed care, especially stroke patients and I would say this is a positive development since the beginning of the pandemic.

Has this effected the 24/7 thrombectomy service that you set up?

Like I mentioned, since the laws have been relaxed, there hasn't been a significant influx of patients. However our 24/7 thrombectomy service which was developed in 2010, has shown a positive increase in patient numbers since it's national roll out in 2017 by the NHS England which I believe is due to positive impact of all the awareness campaigns. We are seeing more and more patients turning up on time and those patients are getting scanned and being treated in a timely fashion as well – so we are seeing an increase in demand for thrombectomy, and that's been gradually happening, it's not been a rapid influx, slowly we are seeing the numbers going up every month and every year. I think its good news that thrombectomy is making progress in the UK in a positive way and that the service is moving forwards. In that perspective, we have also implemented Artificial Imaging (AI) into our algorithm for patient selection and that has increased or effectively helped us select the right patients for thrombectomy. So, a combination of increased patient numbers and the use of appropriate imaging including AI have increased the number of patients we currently see and that has probably put a little bit more pressure on the service.

Your hospital's emergency department recently featured on a UK TV show which showed you conducting the treatment of a patient with a brain aneurysm, please can you tell us more about this experience?

Yes sure, thank you. This is a TV show called '999 critical condition', it has featured on Channel 5 and now it is on its 4th season. It is basically centered on the emergency department in our hospital but also, they show specialized surgery such as treatment of brain aneurysms and mechanical thrombectomy in patients with stroke, so far I have been featured on around 9 episodes where I have shown different cases of patients being treated either for stroke or brain aneurysms and various other cerebral conditions. I would say this is a very positive experience because most people around the country do not even know that a specialty like Interventional Neuroradiology exists, and there has been a lot of progress that has been made over the last years' where patients previously who required an open surgery to have their brain aneurysm or brain condition treated, are now having this done without having an open surgery from basically a vascular route from the patients groin or from the arm. This program has helped raise awareness of such innovative and ground-breaking treatments offered by our specialty, which are now available for patients with life threatening conditions like stroke and brain hemorrhages. The show has featured the stroke thrombectomy, which has helped raise awareness of this procedure. Through this program and other campaigns, we are also helping create public awareness and this has translated in an increase in patient numbers being offered mechanical thrombectomy in stroke. I get more and more communication from patients in form of email, telephone calls, letters, asking me if they can actually benefit from these procedures or how these procedures can help their loved ones, so people are very interested to learn more about it which I think is a positive development.

How do you think we can raise stroke awareness?

Well, there are several ways we can raise stroke awareness and there are a number of organizations who are doing that at the moment, I am working particularly with the Stroke Association campaign who are using a variety of methods including patient testimonials, patient interviews and their statements are being used to show the effectiveness of stroke thrombectomy. As you know, this is one of the most innovative and effective treatment – the need to treat in stroke thrombectomy is 1 in 3; for every 3 patients you treat with severe disabling stroke, 1 patient will be alive and independent.

If you compare that with somebody having a primary PCI for a heart attack, you need to treat 30 patients for 1 patient to be alive and independent, which shows this treatment is very powerful and effective.

I have been involved in raising public awareness of stroke through education. I have developed various educational courses and have featured in numerous television and media programmes to raise patient and public awareness. I and my colleagues have also launched an online educational portal through HAST Education which was aimed to raise stroke awareness during the COVID pandemic.

I am working with numerous organizations nationally and internationally in raising awareness by information sharing and also by getting some of my patients involved in this campaign. It is also very important that we engage the politicians because they are the individuals who can actually affect the policies and within the interventional neuroradiology industry we have partnered by getting politicians and physicians in one platform and trying to generate a debate & raise the awareness of the need and requirements for this treatment.

If you look at this, a lot of centers are now eventually going into a 24/7 service – initially way back in 2010 it was only Stoke-On-Trent (our center in the England) offering the 24/7 service, but now more and more centers are coming up to offer a 24/7 service and I think that's a positive development and that's where we should be. We should have a mission such as 'Mission 2025' where every center in the UK provides a 24/7 thrombectomy service and that should be the aim or the goal. All of this ties up with the new NHS England's plan which is going to come out for acute care and I hope thrombectomy in stroke will make a prime feature in this plan.

Could you provide some insight as to what are the new therapies in stroke?

Well, firstly I would say thrombectomy is definitely one of the new and life changing/groundbreaking therapies in stroke, but there is a lot of work that needs to be done around this in regards to improving the speed and pathway itself. There are a lot of delays within the treatment pathway which has to be improved. There is a requirement for funding to get rapid access to treatment and for newer imaging modalities such as the use of Artificial Intelligence. We are currently trying to engage with a company that provides scanning within the Angiography suite for patients, patients will benefit because they can be moved directly to the Angiography suite for direct scanning and treatment - this will significantly reduce the time to treatment time.

We need to have a change of mindset when we treat strokes now, for example if a patient presents us with bacterial meningitis, nobody asks what tests are required or nobody wastes precious time before treating them with antibiotics – same with somebody with a heart attack, they don't get a lot of tests done and they go straight to the Cath lab, knowing the fact that 15% of them may not be treated, because the time here is so crucial. It should be the same way we approach stroke as well, bringing them straight to the Angiography suite and trying to diagnose and treat at the same time which can reduce significant time to treatment for the patient, because as you know time is brain and every minute you delay, you are losing 32,000 neurons, so it's very important that we act quickly when providing this form of treatment.

There are other newer therapies in stroke which we have been exploring through our active research department. More recently I have been fortunate to obtain a NIHR Research scholar post and we have developed a research unit where we are undertaking a few research studies looking at pressure changes within the vertebral vessels of the brain when a patient has a stroke, looking at the pressure dynamics, collateral flow and a lot of other studies to understand the brain physiology and the brain dynamics when a patient has a large stroke. We are trying to look at other modalities of treatment such as stem cell therapy, where we can use this new stem cell treatment to reach the part of the brain which has been impacted - so there is a lot of new research development in progress, and it is exciting times that we are trying to see and find newer and more innovative treatments in stroke and stroke thrombectomy.