

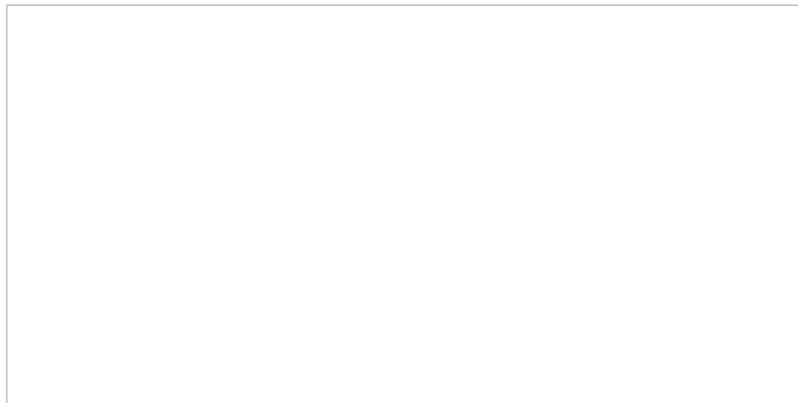
Mechanical Thrombectomy – should we rethink how we treat stroke?



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Stroke is not a risk for older people exclusively. Across all types of stroke, we need to remember that a quarter of them occur in people under 65.¹ We know the combination of a decrease in deaths from stroke and an increase in actual stroke events means more people will survive and live with the impact of stroke. The burden of stroke is likely to increase substantially in the next ten years.¹

The extensive vaccination program is proving effective against COVID-19 and its variants and marking a turning point in the pandemic in many countries. However, the day-to-day challenges and realities of treating stroke are unlikely to improve for some time due to the risks posed by COVID-19. We still have increased levels of preparation and protocol for emergency cases in order to minimise infection, with pre-defined and pre-determined pathways from admission to angio for patients with an unknown COVID-19 status. Then, there is the exhausting reality of staff having to wear protective PPE for long periods of time during already exhausting and challenging procedures. Full body PPE gear is uncomfortable and can leave professionals with bruising and skin breaks. Combined with depleted emotional reserves, all of this can take its toll on even the most stoic team member. Under all that physical discomfort, teams must continue carrying out these, stressful but more importantly, lifesaving procedures.

Across Europe, the pressure on healthcare services to recover as well as to move out of the acute phase of the COVID-19 pandemic is high. In the UK, there are people patiently awaiting to undergo elective procedures, as well as a cohort of people living with conditions that are yet to be un diagnosed and who will require treatment. As a result, the Royal College of Surgeons England has advocated for establishing surgical hubs to aid recovery and facilitate with the backlog of non-urgent procedures.²

The role of mechanical thrombectomy (MT) in building better services and outcomes

MT is still a relatively young intervention; a minimally-invasive procedure where from within the blood vessel, a device called as tent retriever is used to remove the obstructing blood clot. As experience has grown, we are now focussing more on the technique, to remove the clot in one go on the first try or attempt, also known as achieving First Pass Effect (FPE). This approach also limits the degree of damage to the vessel wall and reduces the length of the procedure.

With interventional and surgical procedures, the most critical parameter in terms of complications rate is the length of the procedure, not necessarily how complex the case or procedure is. Considering the burden of PPE on teams, there is significant value in treating ischemic stroke efficiently within the first 20 – 30 minutes through the appropriate devices and techniques, instead of carrying out long 2-3 hour procedures. Even forgetting the current health crisis, a procedure that takes 15 – 20 minutes versus a procedure that can take up to two hours, has a considerable benefit for teams and service delivery.

Clinical benefits

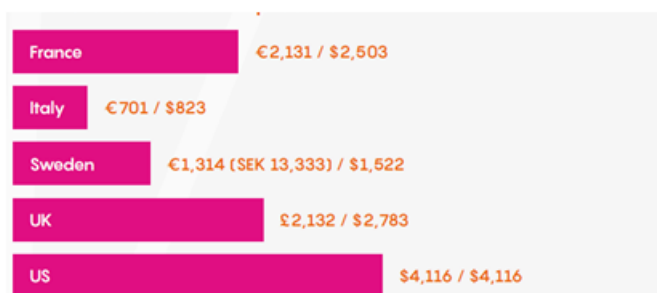
MT improves long-term clinical outcomes compared with intravenous thrombolysis alone.³ In particular, achieving complete or near-complete FPE has clinical advantages over multiple attempts to remove thrombi.⁴ For every 100 patients treated, 38 have a less disabled outcome than with best medical management, and 20 more achieve functional independence⁵. Importantly, FPE results in improved outcomes in terms of time spent in hospital, disability and functional independence compared with patients who did not achieve first-pass success.⁴

Economic benefits

Recent analyses suggest mechanical thrombectomy is a cost-effective procedure when viewed in terms of the improved clinical outcomes, which translate into lower healthcare resource use.⁶ Costs vary from one healthcare system to another and differ according to the costs studies took into account and the time horizon considered, so directly comparing various studies is not easy and usually not feasible.

However, achieving FPE, as shown in the [Health Economic report published in JNIS](#), creates a per-person acute cost saving of €1,560-€4,548 (European country dependent) and \$6,575 in the US.⁶ Additional cost savings, up to one year following the acute care phase, range from €701–€2,131 in Europe to \$4,116 in the US. That is a significant saving, even more so in light of COVID-19 when the EU has spent €37 billion to manage the impact COVID-19 has had on member state's healthcare systems.⁷ For comparison, in 2019, the costs of stroke care in the EU were over €60 billion.⁸

Image 1. Per patient annual cost savings (up to one year after stroke) in Euro and US Dollar equivalent.



Conclusion

For the NHS, using MT to treat ischemic stroke patients as a first line treatment could amount to £2,132 per patient per year. When you consider the £92 billion the UK government has spent on COVID-19 response from 2020/ 2021 and enhanced infection control⁹, any savings made by implementing MT is a significant opportunity to help the NHS recover.

MT remains the gold standard for treating ischemic stroke. We see on the wards the immediate benefits of the procedure: the patients we treat with MT are not being discussed days and weeks after procedure; they are already at home recovering and getting back to their day-to-day lives. For anyone working in neuro intervention and stroke, this is what we do day in day out and what we aspire for our patients every time.

The pandemic has facilitated wider changes in the delivery of healthcare that we perhaps would never have predicted beforehand. There is now a unique, once in a lifetime opportunity to rebuild services for the better. To change how we treat stroke for the benefit of patients, their loved ones, our healthcare systems and our communities. Let's not miss this chance.

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