

Immediate Release
Case Study Included

FROZEN FINGERS **Could a Painful Winter-Long Condition be Cured Using BOTOX?**

London – April, 2024 - A recent study pioneering botulinum toxin as a treatment for a debilitating and painful condition brought on by cold temperatures could offer relief for thousands of people, plastic surgeons have revealed.

Cold intolerance in extremities in post-trauma patients is a relatively common condition⁹ that causes painful fingers, persistent coldness or numbness, and changes in skin colour, such as paleness or bluish tint. These occur after trauma to the area, such as crush injuries or fractures, during which blood vessels are damaged. Affected parts may become overly sensitive or painful in response to cold conditions, and the symptoms are often severe enough for sufferers to be unable to carry out everyday tasks or go to work.

Traditional treatments include wearing gloves, massage, and medications that dilate the blood vessels. However, for many people these do not work and people are left dealing with the debilitating pain every time the temperature drops. But a study carried out in Whiston Hospital, Liverpool, may have come up with the answer that could save months of pain for thousands of people. The study, led by Professor McArthur and entitled Use of Botulinum Toxin Injections in the Treatment of Cold Intolerance, presented at the British Association of Plastic, Reconstructive, and Aesthetic Surgeons' (BAPRAS) (<https://www.bapras.org.uk/>) annual conference last month, had positive outcomes from using botulinum toxin as a treatment when other treatments had failed.

Botulinum toxin injections have only recently been unveiled as a treatment protocol for patients with Raynaud's Syndrome¹⁰ - a condition which causes fingers or toes to feel numb and cold in response to cold temperatures or stress. Seeing its effectiveness in Raynaud's patients, who have to deal with similar symptoms, study co-author and Locum Consultant Plastic Surgeon Shetha Naji trialled it as a treatment for two of her post-trauma patients, with incredible success. Shetha, part of Professor McArthur's team, says:

“The potential for this trial is highly promising and exciting. The positive outcomes observed in two cases of post traumatic cold intolerance, provides evidence for the concept of using Botulinum toxin in this cohort of patients. Our aim is to conduct a comprehensive trial to better understand its potential benefits and to provide a more thorough evaluation and insights into the effectiveness of Botulinum toxin injections for individuals experiencing cold intolerance in extremities following trauma.”

The researchers observed good improvement in both patients, with one discharged and the other undergoing yearly injections. The treatment would be used in patients for which other treatments, such as medications, had not improved their symptoms. Shetha continues:

“The use of Botulinum toxin in patients with Raynaud's disease is well established, with good tolerance. This led us to consider its use in post-traumatic cold intolerance, where other management modalities have failed. The potential benefits are substantial, especially for those struggling through winter months or with work exposed to cold temperatures. The mechanism of action of Botulinum toxin on cold intolerance is thought to be in part, but not exclusively, to its chemical ability to dilate blood vessels, and further studies will enable better understanding of this. The prospect of a treatment that addresses symptoms effectively with minimal side effects is encouraging, especially in a group of patients with few effective treatment options.”

⁹[https://www.sciencedirect.com/science/article/abs/pii/S2468122923000300#:~:text=Abnormal%20cold%20in tolerance%20\(ABC\)%20or,4%5D%2C%20%5B5%5D.](https://www.sciencedirect.com/science/article/abs/pii/S2468122923000300#:~:text=Abnormal%20cold%20in tolerance%20(ABC)%20or,4%5D%2C%20%5B5%5D.)

¹⁰ <https://pubmed.ncbi.nlm.nih.gov/37011178/>

Consultant plastic surgeon and BAPRAS President, Mani Ragbir, says:

"We are excited about the progress being made in this field. This research, presented to the plastic surgery community at our Annual Meeting, opens up a new realm of possibilities for those suffering from a debilitating condition. The prospect of improving the quality of life for individuals struggling with post-trauma cold intolerance marks a significant advancement, and demonstrates the widely varied areas encompassed in the plastic surgery profession."

CASE STUDY

57-year-old Kieron Dooley from Dalton, West Lancashire, injured his finger in 2016 when he slipped in the garden while carrying a decorative cast-iron urn. As he landed, his hand became trapped between the base of the urn and the ground, causing an open fracture to his finger. Kieron, who works in the funeral service, says:

"I didn't think much of it at the time - I dressed the wound and went to bed. The pain woke me the next day and the dressing was soaked through; when I removed it, I could see it was more than just a cut. The walk-in centre sent me to A&E, where I was told I had multiple fractures near the knuckle and treatment options were limited. The open fracture was surgically cleaned and a splint applied. I thought that this would be the only treatment I would require, I'd never heard of cold intolerance and certainly didn't expect the injury to lead to it."

After the wound healed, Kieron began experiencing pain in his finger whenever it was cold, as well as a loss of colour and numbness. Kieron works in a cold environment, which exacerbated the condition, leading to him being unable to complete some tasks, such as embalming. As a result, Kieron found himself constantly worried about the impact of his condition on his work, which involves using surgical instruments and undertaking dissections.

At the trauma clinic at Whiston General Hospital, Prescot, Merseyside, Kieron was offered a trial of botulinum toxin to help with the pain. Having been told about the positive outcomes of botulinum toxin treatments for people with Raynaud's, Kieron agreed to sign up and received his first injection. He noticed the benefits quickly, and was soon able to work for long periods of time without having to stop. Kieron says:

"Before the injections, work was a constant worry to me. Having to stop in the middle of a critical process and ask a colleague to take over was quite problematic, and I was keen to try out the botulinum toxin injections. Although I had no reservations, I was surprised that they worked so quickly - I experienced the benefits within two weeks of the first injection. It has helped me massively and removed the constant worry I used to have whilst at work in a cold environment."

Shetha Naji says:

"Our first case was a 52 year-old man who developed severe cold intolerance following a crush injury and fracture of his left index finger. Despite trying massage, gloves, and medication, his symptoms persisted and were exacerbated at work, where he was exposed to the cold. After Botulinum toxin injections, he experienced an 80% reduction in symptoms with no adverse effects. This trial is crucial for understanding Botulinum toxin's role in post-traumatic digital cold intolerance, it's efficacy and any contra-indications to treatment. In order for this, detailed regular assessment and long term follow-up is required."

ENDS

Notes to Editors:

About the British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS)
The British Association of Plastic, Reconstructive and Aesthetic Surgeons is the voice of plastic surgery in the UK, advancing education in all aspects of the specialty and promoting understanding of contemporary practice. BAPRAS speaks for the majority of reconstructive and aesthetic plastic surgeons providing services to patients in the UK today.

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