Docket #: S23-053

Rotation Thrombectomy Device for Clot Removal in Large Vessel Occlusions

Stanford researchers in the Zhao Lab have designed and optimized a rotation device that can mechanically dissolve a clot for fast and complete clot retraction.

Current thrombectomy techniques, such as aspiration and stent retriever, fail to restore any blood flow in 15% of patients after multiple passes, with aspiration methods having a failure rate of 25%~33%. Both aspiration and stent retriever can fracture the clot during operation, leading to clot fragmentation and distal clots. This proposed procedure prevents fragmentation of the clot through shearing the clot, instead of stretching and breaking it. This invention can reduce the time required to remove large vessel occlusions that can lead to acute ischemic stroke.

Stage of Development
Research - in vivo

Applications

- **Improved thrombectomy method** for acute ischemic stroke treatment
- **Targeted drug delivery -** drug release can be tuned by the spinning speed of the spinner

Advantages

- **Effective and faster**
- **Prevents fragmentation of the clot** and reduces clot size through shearing the clot, instead of stretching and breaking it

- **Enhanced deliverability and safety** - utilizes a soft design, which is less invasive to soft tissue

Patents

- Published Application: WO2023219965
- Published Application: 20250228587

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