

Preliminary Results of the REMIND Trial: A Prospective Early Feasibility Study in Alzheimer’s Patients with Lymphatic Abnormalities in the Deep Cervical Lymph Node Region

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Preliminary 30-day findings from the first 3 REMIND participants showed no device-related serious adverse events, no serious adverse events, 100% anastomosis patency prior to closure, and next-day discharge in all cases.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES																										
Alzheimer’s disease (AD) affects millions of individuals worldwide and is characterized by progressive neurodegeneration^{1,2}. Recent research has identified the role of glymphatic and meningeal lymphatic systems in the transport of macromolecules, including amyloid, from the brain to the deep cervical lymph nodes (dCLNs)³⁻⁸. Amyloid has been detected in the dCLNs of patients with AD, supporting a potential connection between lymphatic function and disease-related processes⁶. The REMIND study evaluates surgical approaches targeting the lymphatic drainage pathways in the dCLN region using supermicrosurgical techniques. This early feasibility study explores the use of robotic-assisted microsurgery to access and modify these pathways in patients with mild to moderate AD and lymphatic abnormalities.	REMIND is a prospective, multicenter early feasibility study approved by the FDA (NCT07178210), which evaluates the safety and feasibility of using the Symani Surgical System to perform microsurgical techniques in the deep cervical lymph node region. Patient population includes adults with mild to moderate Alzheimer’s disease according to NIA-AAA, who also have deep cervical lymph node abnormalities confirmed through preoperative imaging. Participants underwent screening to confirm eligibility using imaging, biomarker, and cognitive assessments, followed by staged enrollment with DSMB review prior to expansion. Enrolled participants received bilateral lymphatic reconstruction and are being followed prospectively for safety and feasibility outcomes. Planned enrollment is 15 participants with follow-up through 1 year after surgery.	Among the first 3 REMIND participants treated, no device-related serious adverse events were reported at 30-days and no serious adverse events were observed. A total of three adverse events were reported in two subjects, all of which were mild and unrelated to the device. Anastomosis-specific reoperation rate was 0, and anastomosis patency prior to closure was 100%. <table><tr><th colspan="2">Patient Demographics</th></tr><tr><td>Mean Age</td><td>72 yrs (67-77)</td></tr><tr><td>Sex</td><td>2 male, 1 female</td></tr><tr><td>Mean BMI</td><td>23.9 kg/m² (20.2–29.8)</td></tr><tr><td>mRS Score</td><td>2 (all)</td></tr><tr><td>APOE4 Status</td><td>2 copies (n=1) 1 copy (n=2)</td></tr><tr><td>Baseline MMSE</td><td>12, 14, 21</td></tr><tr><td>AD Duration</td><td>64 mo (36-96)</td></tr></table> <table><tr><th colspan="2">Procedural Characteristics</th></tr><tr><td>Mean OR Time</td><td>4.9 hrs (4.6-5.3)</td></tr><tr><td>Mean Anesthesia Time</td><td>4.6 hrs (4.2-5.1), IV only</td></tr><tr><td>Procedure Type</td><td>Bilateral Lymph Node to Vein Anastomosis (all)</td></tr><tr><td>Discharge</td><td>Day after surgery (all)</td></tr></table>	Patient Demographics		Mean Age	72 yrs (67-77)	Sex	2 male, 1 female	Mean BMI	23.9 kg/m² (20.2–29.8)	mRS Score	2 (all)	APOE4 Status	2 copies (n=1) 1 copy (n=2)	Baseline MMSE	12, 14, 21	AD Duration	64 mo (36-96)	Procedural Characteristics		Mean OR Time	4.9 hrs (4.6-5.3)	Mean Anesthesia Time	4.6 hrs (4.2-5.1), IV only	Procedure Type	Bilateral Lymph Node to Vein Anastomosis (all)	Discharge	Day after surgery (all)	These preliminary data from the first 3 REMIND participants describe early procedural and 30-day safety findings in an early feasibility setting. No device-related adverse events and no serious adverse events were observed, and anastomosis patency prior to closure was 100%. Enrollment is ongoing with additional participants planned and longer-term follow-up underway. These data are intended to inform future larger-scale safety and efficacy study designs.	1. Jack CR, et al. <i>Alzheimers Dement</i>. 2024. 2. Jack CR, et al. <i>Alzheimers Dement</i>. 2018;14:535–562. 3. Xie L, et al. <i>Science</i>. 2013;342:373–377. 4. Iliff JJ, et al. <i>Sci Transl Med</i>. 2012;4:147ra111. 5. Da Mesquita S, et al. <i>Nature</i>. 2018;560:185–191. 6. Al-Diwani A, et al. <i>Brain</i>. 2025;148:394–400. 7. Liu H, et al. <i>Alzheimers Dement</i>. 2023. 8. Dagum P, et al. <i>Nat Commun</i>. 2026;17:715. CONTACT  Ricardo Hanel, MD, PhD drricardohanel@icloud.com  ALZHEIMER'S ASSOCIATION 
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