Efficacy and safety of single-photon emission computed tomography (SPECT) aided botulinum toxin injection in writers' cramp: A PROBE Study

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IANCON, 2025

Aims and Objectives

- **Aims:** To show the efficacy and safety of SPECT aided EMG guided Botulinum toxin (BoNT) in Writer's cramp (WC).
- **Primary objectives:**
  - To evaluate the efficacy of SPECT aided EMG guided BoNT injection in patients with WC as compared to clinical and EMG based injection
- **Secondary objectives:**
  - To assess the safety profile in the study and the control groups and compare the same
  - To evaluate handwriting kinematics of WC patients, and the change in the parameters post intervention

Materials and Methods:

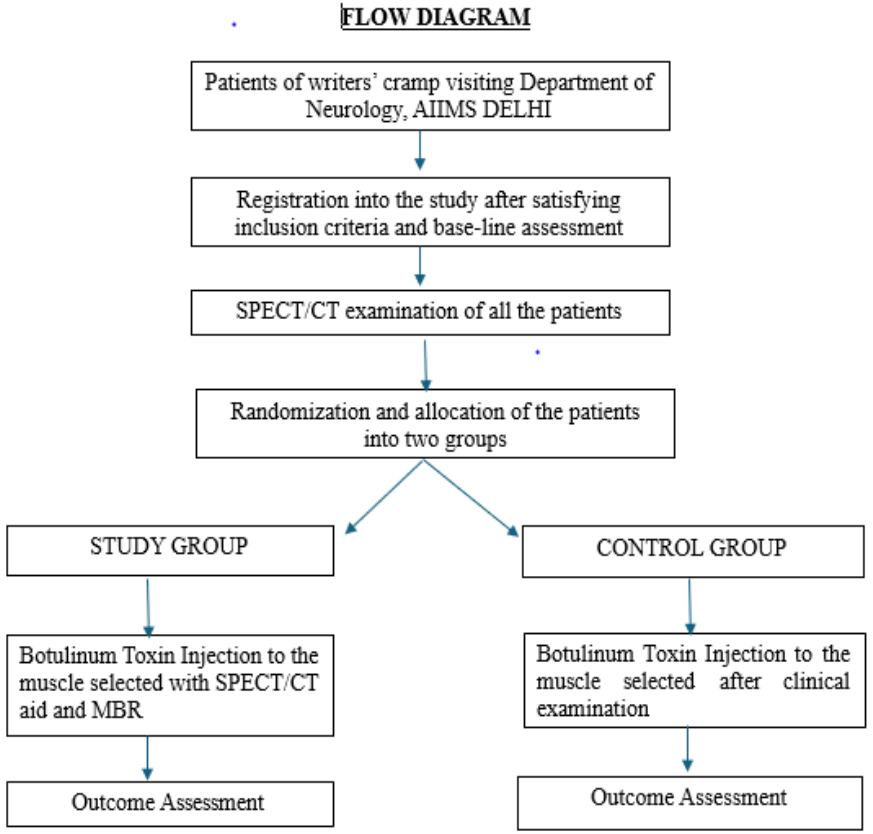
- Prospective, Randomized, Open label, Blinded end-point trial analysis (PROBE) study, single centred

Phase 1:Establishing a baseline model- check the tracer uptake in dystonic muscles

- 5 writers' cramp patients - made to write, to induce dystonia
- Tracer administered IV in lower limb
- After one hour image acquisition is done
- Muscle/background ratio (MBR) + a written report of SPECT/CT

Phase 2: Randomisation followed by intervention as planned

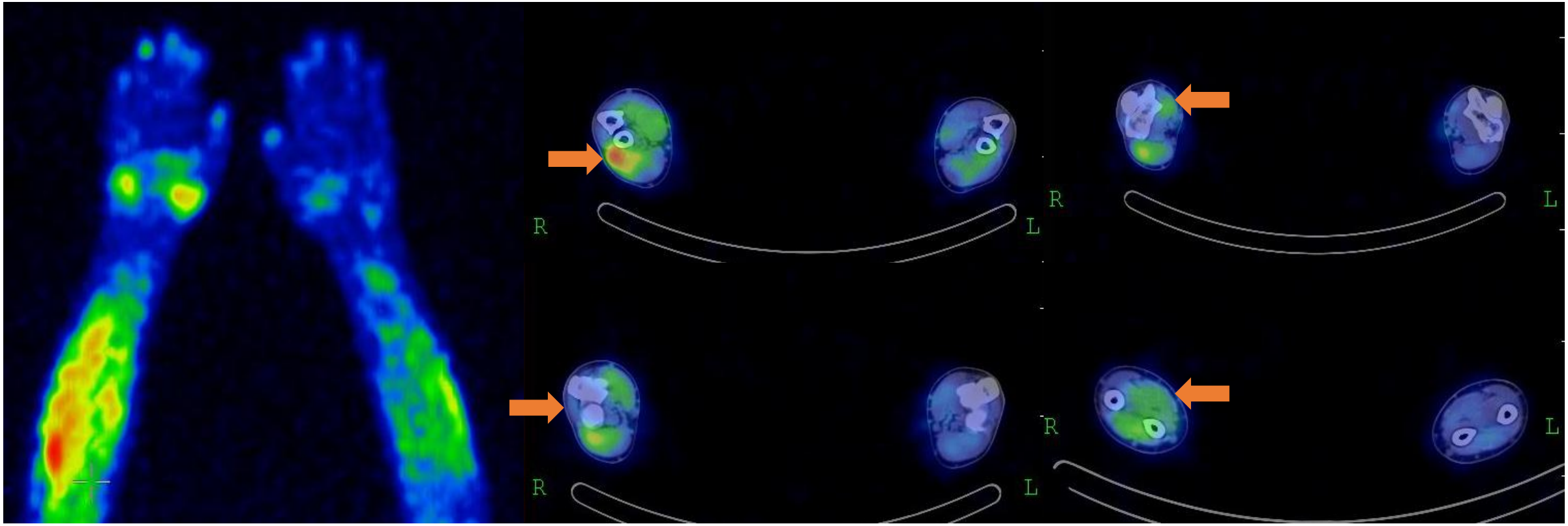
- A baseline demographic and clinical assessment, and the UDRS (Unified Dystonia Rating Scale) and Writer's Cramp Rating Scale (WCRS) score
- A standardized video of the symptomatology
- Baseline handwriting kinematics using a digital surface input device (Wacom tablet with a stylus)



Outcome assessment and follow-up

Primary Outcome: Difference in WCRS and UDRS scores at 3 weeks between the study and the control groups

Secondary Outcome:



Tc-99m SestaMIBI scintigraphy MIP (Maximum intensity projection image – A) and axial fused SPECT-CT images (B to E) of a 24-year-old man done for writer's cramp showing increased radiotracer uptake in extensor carpi radialis (B), extensor carpi ulnaris (C), flexor carpi radialis (D) and flexor digitorum superficialis (E) muscles (solid orange arrows) of the right forearm.