

# Distribution of spasticity in both lower limbs of people affected by unilateral stroke and the muscles selected for botulinum toxin A injections (BoNT-A)

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**Aims:**

- 1) To identify the muscles most frequently affected by spasticity in stroke.
- 2) To assess spasticity in the unaffected side.
- 3) To assess whether the distribution of BoNT-A injections matches that of spasticity.

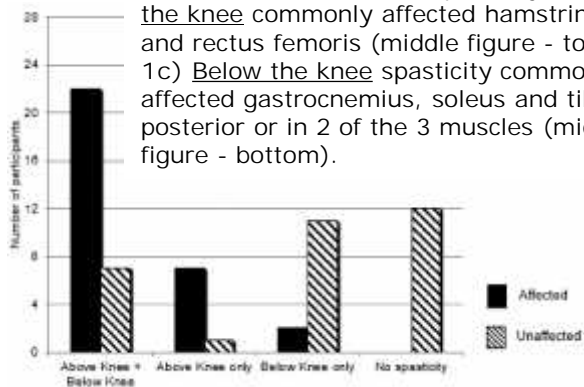
**Method:**

Observational study N=31 adults with unilateral stroke. Seven muscles in each leg were assessed for spasticity (Modified Tardieu Scale). The frequency of spasticity in each muscle was compared with the frequency it was injected with BoNT-A.

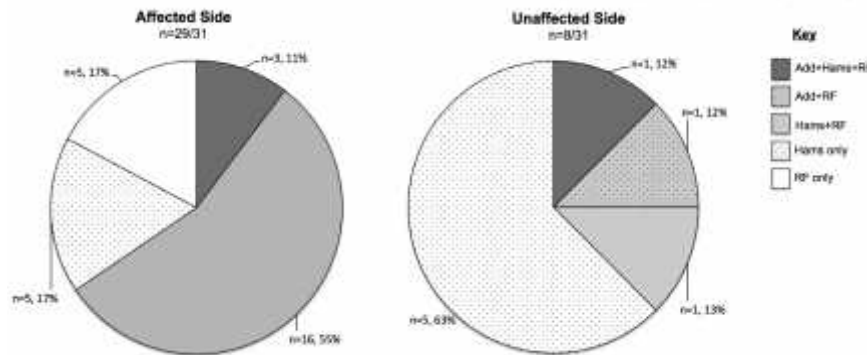
**Results:**

1a) In the affected side spasticity was often found in muscles below and above the knee at the same time (figure below)

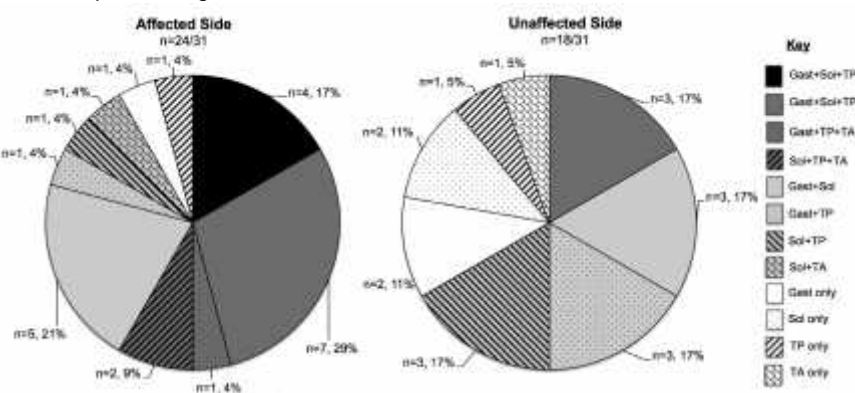
- 1b) In the affected side spasticity above the knee commonly affected hamstrings and rectus femoris (middle figure - top).
- 1c) Below the knee spasticity commonly affected gastrocnemius, soleus and tibialis posterior or in 2 of the 3 muscles (middle figure - bottom).



**Spasticity in muscles above the knee**



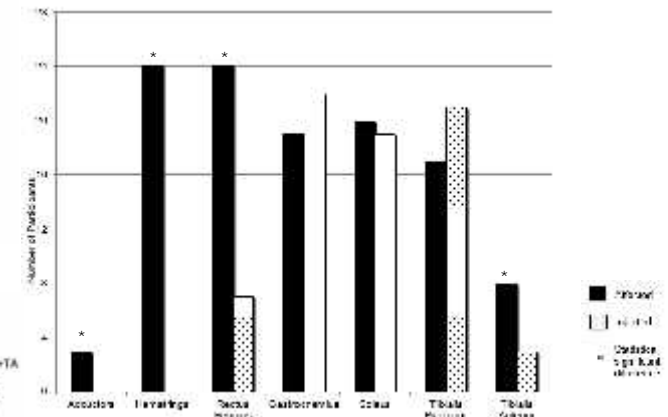
**Spasticity in muscles below the knee**



**Results:**

2) Spasticity in the unaffected side was mainly in gastrocnemius, soleus and tibialis posterior or in 2 of the 3 muscles (middle figures).

3) Injections of BoNT-A were predominantly into muscles below the knee (figure below).



**Significance:**

It appears that clinicians are not addressing spasticity adequately. Spasticity in both the thigh and calf muscles is common, yet spasticity in the calf muscles is the one mostly addressed by clinicians.

Spasticity may not be confined to the affected side only. Assessing spasticity in the "unaffected" side may be required as it could potentially contribute to dysfunction.

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