INTRODUCTION

- Stroke is a neurologic condition that results in greater weakness on the side of the body opposite the brain lesion.
- Hemorrhagic stroke occurs when blood leaks through the blood vessels of the brain.
- 2/3 of stroke survivors are left with some form of disability, costing the US nearly $35 billion a year.
- Little is known about the muscle physiology in limb muscles weakened by stroke.
- Muscle fibers with damaged nerve supply become small and angular (SAF).

OBJECTIVE

Question: Does the soleus muscle show signs of neural injury with or without signs of repair after a hemorrhagic stroke?

Purpose: Look at if neurological changes occur post stroke and if so, how these neurological changes progress over time.

Hypothesis: The soleus muscle on the limb opposite the side of the brain’s stroke lesion will have increased signs of neural damage and regeneration compared to controls at 2 and 4 weeks post-stroke.

METHODOLOGY

- Images analyzed to identify number of SAF.
- The area of each SAF was calculated.
- Data was normalized by dividing the total number of SAF per cross-sectional area by the total area of the tissue cross-section.

RESULTS

- No significant difference in number of SAF between limbs in the stroke group at 2 weeks.
- Significantly greater number of SAF in stroke left limb as compared to stroke right limb at 4 weeks.
- Larger SAF number indicates loss of muscle innervation on the weaker side post-stroke.
- Molecular processes in the nervous system due to stroke take 4 weeks to result in anatomic changes in the muscle.

Clinical Implication: This information may ultimately allow physical therapists to provide more specific therapies to persons after stroke.

LITERATURE CITED


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