Race to nerve regeneration: faster is better

October 3 2011

A team of researchers led by Clifford Woolf and Chi Ma, at Children's Hospital Boston and Harvard Medical School, Boston, has identified a way to accelerate the regeneration of injured peripheral nerves in mice such that muscle function is restored. In an accompanying commentary, Ahmet Höke, at Johns Hopkins School of Medicine, Baltimore, discusses the importance of this work to the clinical problem.

Our peripheral nerves connect our brain and spinal cord to the rest of our body, controlling all volitional muscle movements. However, they are fragile and very easily damaged. Peripheral nerves can regenerate after injury, and if the site of damage is close to the muscle controlled by the damaged nerve, full muscle function is frequently restored. However, if the site of damage is far from the muscle controlled by the damaged nerve, recovery of muscle function is minimal.

Woolf, Ma, and colleagues found that injured peripheral nerves grew faster in mice that overexpressed human heat shock protein 27 (Hsp27) than in normal mice. This enabled the peripheral nerves to form functional connections with their target muscle and led to recovery of muscle function. Clinical data are also provided to support the authors' suggestion that their work indicates that strategies that increase the rate of nerve growth may enhance functional recovery in patients after peripheral nerve damage.

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Provided by Journal of Clinical Investigation