Katharina Quinlan

Nociceptor sprouting in cerebral palsy

Proposal Abstract:

People with cerebral palsy (CP) have difficulties moving due to an adverse event or trauma during late gestation, birth or the early neonatal period. Most also experience pain, more often than the general population. It is often assumed that their physical challenges (misalignment of joints, tight muscles) are simply the cause for pain without even considering the possibility that their sensation, or more specifically their nociception (sensation of noxious stimuli) is impacted by the developmental injury. To improve treatments for CP, I use rabbits exposed to prenatal hypoxia-ischemia as a model. These rabbits show greater sensitivity to noxious stimuli than control rabbits. In addition, the neurons that respond to painful stimuli (nociceptors) expand their projections within the spinal cord. We will test if the same nociceptor expansion is present in spinal cords of people with CP, compared to those without CP, by quantifying projections of nociceptors into the dorsal spinal cord in human postmortem tissue. Obtaining this data will validate that the findings in rabbits are clinically relevant and further our goal in securing external funding for this project to find avenues to prevent the expansion and alleviate pain in this vulnerable population.

Awarded: $19,511.41