Pain

CHEMOTERAPY INDUCED NEUROPATHIC PAIN

Background

Chemotherapy-induced neuropathic pain is one of the most serious complications associated with anti-cancer drugs. It leads to a lower quality of life and dysfunction of the sensory, motor, and autonomic systems, and often causes patients to discontinue chemotherapy. Chemotherapy-induced neuropathic pain is usually misdiagnosed and undertreated, due to a lack of consensus and unclear pathophysiology, for which many mechanisms have been suggested, including mitochondrial dysfunction and various pain mediators.

To date, no agents have been shown to effectively prevent chemotherapy-induced neuropathic pain, and long-term management of pain is therefore becoming one of the most challenging aspects of treatment for neurologists and oncologists.

Pathology Model

In order to recreate in vitro the chemotherapy induced neuropathic pain model, we will challenge the primary sensory neurons (Primary cultures of DRG neurons from Sprague Dawley rats) with a well-known chemotherapeutic agent, namely vincristine.

Readouts

The following parameters will be taken into consideration:

- Cell viability
- Axonal degeneration
- LDH release
- IL1beta/TNF-alpha production
- Morphological modulation
- Electrophysiological properties