

# Acute and Chronic Neuropathic Pain after Spinal Cord Injury: Two Sides of the Same Coin?

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## INTRODUCTION

- There is a lack of clinical information regarding acute neuropathic pain after spinal cord injury.
- The presence of different pain types in the acute setting (musculoskeletal, postoperative, neuropathic) is a diagnostic challenge.
- There is no consensus on how to best diagnose and track acute neuropathic pain after spinal cord injury.

## OBJECTIVES

- To track neuropathic pain within the first days of injury using the Douleur Neuropathique 4 Questions (DN4) questionnaire.
- To characterize the phenotype of acute neuropathic and compare this to neuropathic pain at chronic timepoints based on the descriptors of the DN4.

## METHODS

- Assessment of neuropathic pain and SCI details (see below) during the 5-day hyperacute post-injury period and at fixed time intervals, i.e., 3, 6, and 12 months after injury.
- Only "worst pain" was fully characterized using the DN4 questionnaire.
- The primary analysis addressed the number of patients presenting with at- and below-level pain during the hyperacute phase (initial 5 days) after SCI.
- A secondary analysis addressed phenotypes of neuropathic pain at acute compared to chronic time points.



DN4 Questionnaire  
INSCSCI Exam

Enrollment &  
Day 1-5



DN4 Questionnaire  
INSCSCI Exam

3 months



DN4 Questionnaire  
INSCSCI Exam

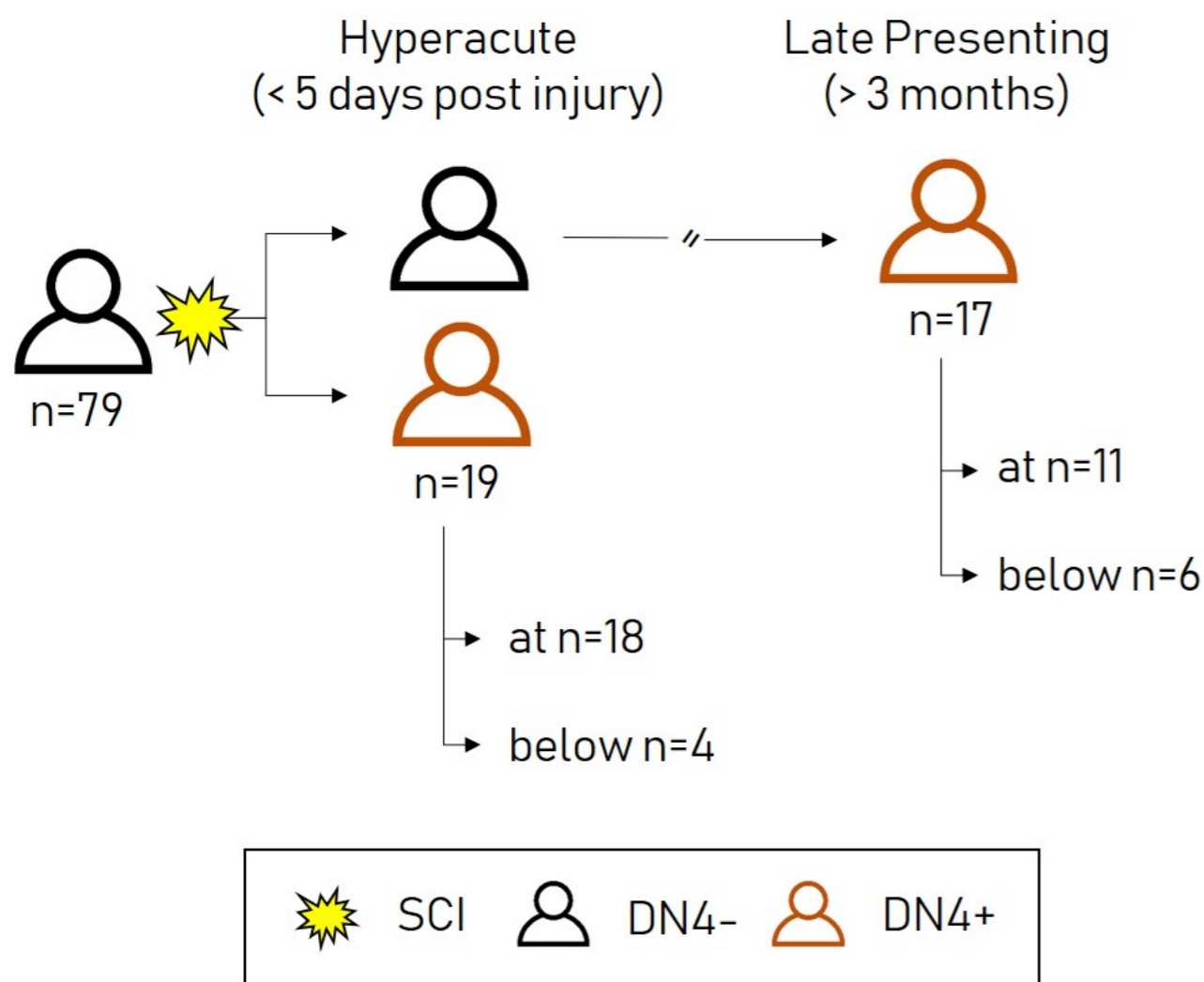
6 months



DN4 Questionnaire  
INSCSCI Exam

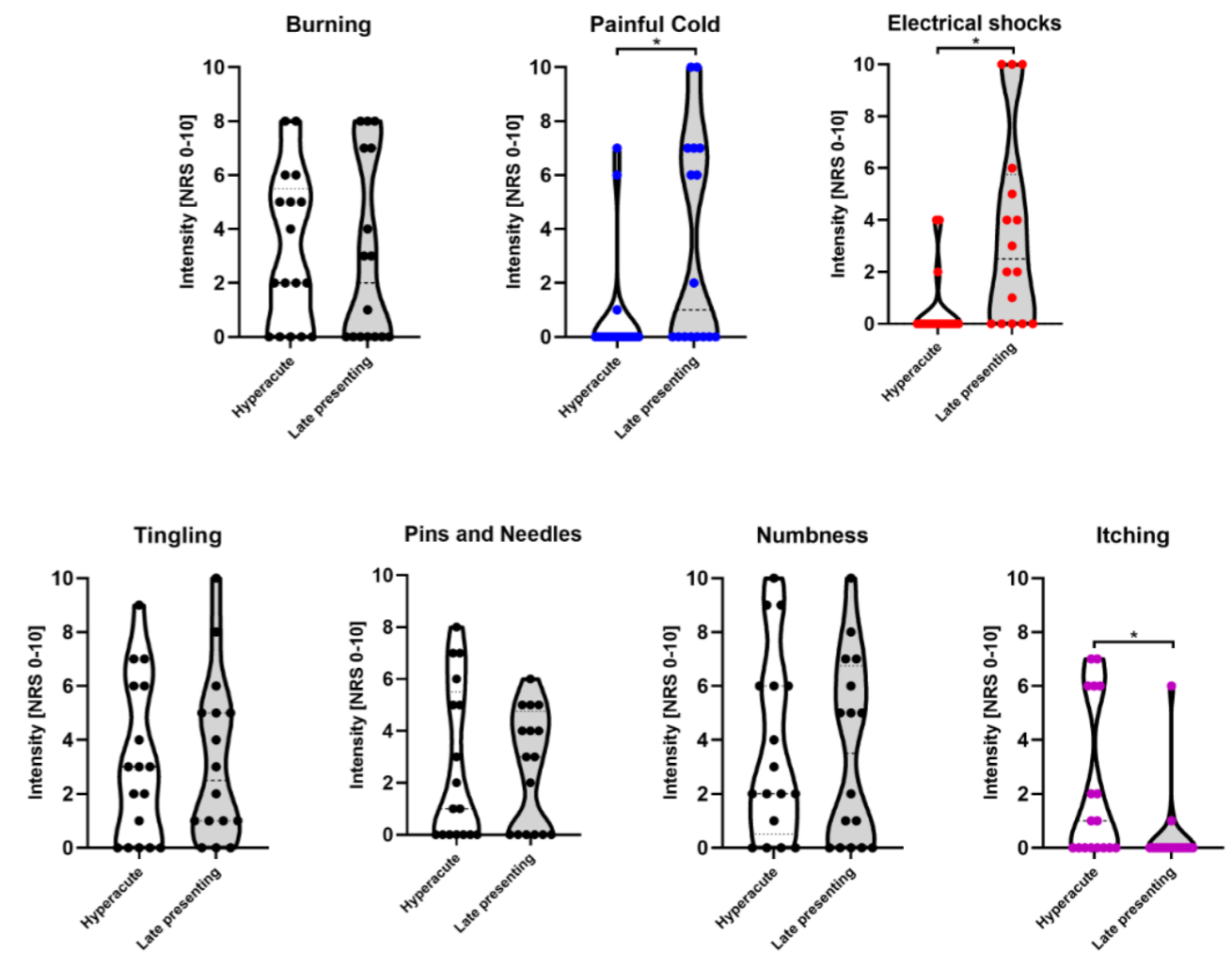
12 months

## RESULTS



### Frequencies of Acute and Late Presenting DN4-positive Worst Pain

In 19 individuals the worst pain was DN4 positive in the immediate aftermath (<5 days) of spinal cord injury. Among those whose worst pain was not DN4 positive during the acute phase, 17 presented with neuropathic pain at the chronic stage.



### Symptom Profiles of DN4-positive Hyperacute and Late Presenting Worst Pain

Violin plots (median + IQR) of symptom intensity. The upper row shows painful sensation, the lower row paresthesias and dysesthesias.

## CONCLUSION

- Acute neuropathic pain after SCI largely presents as at-level pain = window of opportunity for preemptive analgesia for below-level pain.
- Multiple sources of pain challenge the diagnosis in the acute phase -> research and clinical practice guidelines are needed.
- Distinct neuropathic pain phenotypes develop as a function of time since injury supporting the incorporation of timing into a mechanism-based classification of neuropathic pain after SCI.