Evidence-Based Practice Group Answers to Clinical Questions

“Likelihood of Developing Complex Regional Pain Syndrome among Patients Diagnosed with Carpal Tunnel Syndrome”

A Rapid Systematic Review

By

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About this report

Likelihood of Developing Complex Regional Pain Syndrome among Patients Diagnosed with Carpal Tunnel Syndrome

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About the Evidence-Based Practice Group
The Evidence-Based Practice Group was established to address the many medical and policy issues that WorkSafeBC officers deal with on a regular basis. Members apply established techniques of critical appraisal and evidence-based review of topics solicited from both WorkSafeBC staff and other interested parties such as surgeons, medical specialists, and rehabilitation providers.

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Objective
To determine the likelihood of the development of Complex Regional Pain Syndrome (CRPS) in patients diagnosed with (untreated) carpal tunnel syndrome (CTS).

Methods
- A systematic literature search was conducted on October 4, 2017.
- The search was done on commercial medical literature databases, including BIOSIS Previews® (1969 to 2008), Embase® (1974 to 2017 October 03), Medline Epub Ahead of Print®, Medline In-Process & Other Non-Indexed Citations®, Medline Daily Update® and Medline® (1946 to Present), that are available through Ovid® platform.
- The following combination of keywords were employed in this literature search:

  ((complex ADJ regional ADJ pain ADJ syndrome) OR crps OR causalgia OR (reflex ADJ sympathetic ADJ dystrophy) OR (Sudeck ADJ atrophy) OR algodystrophy OR (post ADJ traumatic ADJ vasomotor ADJ syndrome) OR (complex ADJ regional ADJ pain ADJ syndrome ADJ type ADJ 1) OR (complex ADJ regional ADJ pain ADJ syndrome ADJ type ADJ 2) OR (complex ADJ regional ADJ pain ADJ syndrome ADJ type ADJ I) OR (complex ADJ regional ADJ pain ADJ syndrome ADJ type ADJ II) OR algoneurodystrophy OR (painful ADJ post ADJ traumatic ADJ osteoporosis) OR (transient ADJ migratory ADJ osteoporosis) OR (painful ADJ post ADJ traumatic ADJ dystrophy) OR (shoulder ADJ hand ADJ syndrome) OR (chronic ADJ pain) OR (neuropathic ADJ pain)) AND (carpal ADJ tunnel ADJ syndrome$)

- Two hundred and ninety-nine(1-299) published studies were identified through this search.
- Upon examination of the titles and abstracts of these 299(1-299) studies, nine(2,11,51,62,92,105,127,144,182) studies were thought to be relevant and were retrieved in full for further appraisal.
- No limitations, such as on the study design or language, were implemented in this literature search.
- A manual search on the references of the fully retrieved articles was also done.
  - No further study was identified.
Results

- Of the nine\(^{(2,11,51,62,92,105,127,144,182)}\) studies that were retrieved in full, five\(^{(62,92,105,127,182)}\) will not be discussed further since it was not relevant\(^{(62)}\) to the objective of this systematic review, as the studies reported either on cases (three patients) where the initial diagnosis of CTS was later revised to a diagnosis of CRPS\(^{(92)}\) or where the studies only provided prevalent data on the occurrence of CTS and CRPS together in the same patients\(^{(105,127,182)}\).
- Four studies\(^{(2,11,51,144)}\), in the form of case reports (level of evidence 5. Appendix 1), reported the development of CRPS among patients with untreated CTS. However, it should be noted that none of these studies provided any information/data to calculate the odds/rate of developing CRPS among patients with untreated CTS (denominator data) and the criteria employed in diagnosing CRPS were not clearly described.

Summary

- At present, there are some low level (level of evidence 5. Appendix 1) low quality evidence reporting on the occurrence of CRPS among patients diagnosed with CTS. However, given the available information it is not possible to calculate the likelihood of developing CRPS in patients with CTS. Further, there was heterogeneity in the criteria employed in diagnosing CRPS in these studies.
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A Likelihood of Developing Complex Regional Pain Syndrome among Patients Diagnosed with Carpal Tunnel Syndrome


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A Likelihood of Developing Complex Regional Pain Syndrome among Patients Diagnosed with Carpal Tunnel Syndrome


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## Appendix 1

**WorkSafeBC - Evidence-Based Practice Group Levels of Evidence**  
(adapted from 1,2,3,4)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>Evidence from at least 1 properly randomized controlled trial (RCT) or systematic review of RCTs.</td>
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<tr>
<td>2</td>
<td>Evidence from well-designed controlled trials without randomization or systematic reviews of observational studies.</td>
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<tr>
<td>3</td>
<td>Evidence from well-designed cohort or case-control analytic studies, preferably from more than 1 centre or research group.</td>
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<tr>
<td>4</td>
<td>Evidence from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled studies.</td>
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<tr>
<td>5</td>
<td>Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees.</td>
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