COMPENSATION OF HAND-ARM VIBRATION SYNDROME IN CANADA

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1. INTRODUCTION

Hand-arm vibration syndrome (HAVS) describes the vascular, neurological and musculoskeletal pathology that may arise after sufficient exposure to hand-transmitted vibration (Noel B, 2000). Though HAVS was first recognized a century ago (Loriga G, 1911), the literature suggests that it remains highly prevalent yet under-recognized (Palmer K et al., 1999, NIOSH 1989; Bernard et al., 1998). There exists a paucity of literature on HAVS in Canada, especially with respect to prevalence estimates for the condition, its recognition, and the compensation experience for HAVS claimants. To date, the only study addressing prevalence and compensation of HAVS in Canada was published by Patterson in 1986, who identified 1585 accepted claims for vibration white finger (HAVS) in the 64 years spanning 1920 to 1984 (Patterson C., 1986). A recent report from Quebec suggested under-recognition of HAVS in that province, though data were limited (Turcot et al., 2007). The objective of this study was to provide a summary of the current compensation experience for HAVS in Canada, by reviewing and comparing workers' compensation board policies, adjudication procedures and recent claims data for HAVS in Canada's ten provinces and three territories.

2. METHODS

The Compensation Boards in each province and territory were contacted to request the criteria used for the adjudication of HAVS claims in their jurisdiction. The Boards were also asked to provide the number of accepted HAVS claims in their jurisdiction for the most recent years available in their statistical records. In cases where the Board in question had no prescriptive policy with respect to entitlement criteria or diagnostic testing modalities for HAVS, an effort was made to speak with assessing physician(s) to further delineate the diagnostic approach used for HAVS in that province.

3. RESULTS

Eleven of the 12 compensation boards in Canada responded to our request for information. The initial entitlement criteria used for HAVS claims varies widely by province/territory. Six of the 12 provinces/territories require at least two years of exposure immediately preceding the onset of vascular disease before a claim is considered. In British Columbia, at least 1,000 hours of exposure is required as an initial entitlement criterion, while in the North West Territories and Nunavut (NWT & Nunavut) a claimant must have had at least 3,500 hours of exposure before their claim is considered. The other provinces and territories either do not specify initial entitlement criteria, or simply require confirmation by a specialist (i.e. sufficient exposure in the opinion of the assessing specialist).

With respect to the testing modalities used for diagnosis and impairment rating for HAVS, these also vary widely across jurisdictions. All compensation boards seem to use some form of vascular testing to confirm the presence and severity of cold-induced vasospasm and to rule out other underlying vascular pathology. The most commonly used tests are Doppler examination of the upper extremities (four jurisdictions), plethysmography (four jurisdictions) and thermometry (three jurisdictions). With respect to the neurological component of HAVS, electromyography/nerve conduction studies are used in at least four provinces/territories (British Columbia, Ontario, Quebec and the NWT & Nunavut). Testing for the musculoskeletal aspects of HAVS (using grip strength) is specified by two compensation boards: Ontario and the NWT & Nunavut.

Claims data were available from 10 of the 12 compensation boards in Canada; the province of Newfoundland and Labrador was unable to identify specific HAVS claims from their current record-keeping methods, while the NWT and Nunavut Workers' Safety and Compensation Commission did not respond to our request. There were 457 HAVS claims identified in Canada during the three year period of 2003-2005. The largest number of accepted claims was in Ontario (328) followed by Quebec (87) and British Columbia (28). The average number of accepted claims per year was 152 in the entire country, with 71.8% of these occurring in Ontario.

4. DISCUSSION

This study found considerable variation in the entitlement criteria and assessment procedures used for the adjudication of HAVS claims across Compensation Boards in Canada. The study also found the number of accepted HAVS claims in Canada to be low, compared to prevalence estimates in other comparable industrialized countries. Finally, the results showed the number of accepted claims to vary widely by province/territory.

The most common initial entitlement criterion for HAVS used by Compensation Boards in Canada is the requirement of at least two years of exposure immediately preceding the onset of vascular disease. Two Boards specify the specific number of hours required; 1000 hours in British Columbia

and 3500 hours in NWT & Nunavut. The basis for these entitlement criteria is not clear, but may be based on a study by Miyashita et al. which reported that symptoms of HAVS did not typically appear until after 2000 hours of exposure in a group of forestry workers (Miyashita et al., 1982). However, latencies between exposure and the development of HAVS have been reported to range anywhere from six weeks to 14 years (Gemme et al., 1997). The wide variation in latencies reflects exposures of different magnitudes and frequencies, neither of which is addressed in the initial entitlement criteria used by workers' compensation boards in Canada. While more detailed exposure assessments may occur later in the adjudication process, current Board policies may exclude potentially affected workers from consideration (for example, those with less than 2 years of exposure to high levels of vibration).

Perhaps the most pertinent finding of this study was the small number of accepted HAVS claims in Canada compared to prevalence estimates for HAVS in other comparable industrialized countries. A Medical Research Council survey of 1997-1998 gave an estimate of 288,000 prevalent cases of HAVS in Great Britain (Palmer et al., 1999). In the United States, there were an estimated 1.45 million workers exposed to HAV in 1983 (NISOH 1989), fifty percent of whom could reasonably have been expected to have developed HAVS (Bernard et al., 1998), providing an estimate of 725,000 prevalent cases in the U.S. Using these approximate prevalence estimates while accounting for differences in population, one could postulate between 72,000 to 144,000 prevalent cases of HAVS in Canada. With only 457 accepted claims identified in Canada over the period of 2003 to 2005, significant under-recognition and/or under-reporting is suggested.

Not all compensation boards include HAVS as a specific diagnosis for statistical record keeping purposes, so it is possible that the study was affected by outcome misclassification, resulting in under-estimation of the actual number of HAVS related claims. If this were the case, the number of misclassified HAVS claims would have to be significant to account for the degree of under-reporting suggested by this study. The difference in concentration of claims by province (71.8% of all claims were in Ontario) may be attributable to the fact that Ontario is the only province that has a university-affiliated hospital-based clinic dedicated to the detailed clinical assessment of workers with HAVS in the country. This may result in higher recognition and reporting of HAVS in Ontario. Also, some provinces may have a lower prevalence of occupational HAV exposure. But the construction industry is present in every province, so that cases would be expected in every province.

This study identified wide variation in assessment procedures used for HAVS claimants across the country. In particular, there does not appear to be any clear case definition for HAVS in any of the Board Policies, and many jurisdictions only recognize one or two of the three systems affected in HAVS. While the vascular component of HAVS is recognized by every Board, the neurological component of HAVS is recognized by less than half, and the musculoskeletal components by even fewer. This reflects the complexity of HAVS diagnosis; at present, no single test (vascular, neurological or musculoskeletal) has a demonstrated sensitivity and specificity to allow it to be used as a stand-alone diagnostic tool for compensation purposes. As such, diagnosis must necessarily be based on the overall clinical presentation of each individual worker, with the overall conclusion with respect to the presence and severity of each component of HAVS being made by an experienced occupational medicine physician after carefully considering the worker's history, physical examination and as many objective test results. While such an approach precludes application of an algorithm for diagnosis, it does not mean that a more loosely based case definition cannot be developed and applied across jurisdictions.

In summary, this study suggests under-recognition and/or under-reporting of HAVS in Canada. The results also show significant variation in the compensation experience for HAVS across the Canadian provinces and territories, calling for refinement of the entitlement criteria, case definition and assessment procedures used for the adjudication of HAVS compensation claims in Canada.

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