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Alexis Descatha

Université Versailles-Saint Quentin

Yves Roquelaure

University of Angers, Angers,

Jean Francois Chastang

Université Versailles-Saint Quentin

Bradley A. Evanoff

Washington University School of Medicine in St. Louis

D. Cyr

Université Versailles-Saint Quentin

See next page for additional authors

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Authors

Alexis Descatha, Yves Roquelaure, Jean Francois Chastang, Bradley A. Evanoff, D. Cyr, and Annette Leclerc



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LETTER

Work, a prognosis factor for upper extremity musculoskeletal disorders?

Upper extremity musculoskeletal (UEMS) disorders are a significant problem in industrial countries.¹ There is strong evidence for an association between biomechanical exposures and UEMS disorders.²⁻⁴ However, little is known about the occupational factors associated with recovery from these disorders.⁵⁻⁷

To determine if occupational factors were associated with outcome in workers with UEMS symptoms or disorders, we used data from a repetitive task survey performed in 1993-1994 and again in 1996-1997. The design has been described in earlier publications.^{8,9} Each worker had a standardised medical examination at baseline and again in 1996-1997. The self-administered questionnaire filled out at baseline included data on personal variables, a psychological variable, postures and biomechanical constraints at work (self-assessed, but checked with the occupational physician), psychosocial work factors, and baseline severity of the disorder. Workers were also asked in 1996-1997 about changes in work tasks in the 3-year follow-up period.

Only workers with symptoms or UEMS disorders in 1993-1994 are considered here. Three categories of outcome in 1996-1997 were defined: no symptoms and no UEMS disorders, UEMS symptoms and no disorder, and one or more UEMS disorders diagnosed.

We analysed the 1993-1994 factors associated with outcomes (neither symptom nor disorder in 1996-1997 versus symptoms only and versus disorders), using multinomial non-ordinal logistic regression. Factors were included in the model if they reached a *p* level of 0.20 in bivariate analyses. If some prognosis factors were too strongly correlated, only the most appropriate one was included.

Of the initial 700 workers, 598 were followed completely during the 3-year period (85.4%). At baseline, 464 of them had UEMS symptoms or disorders and were included in this analysis (77.6% of the 598 workers). Most had a disorder (*n* = 421, prevalence = 70.4%) and only 43 had symptoms in isolation. No difference in outcome was found between those who reported their job had changed in the last 3 years (*n* = 114) and those who declared that it had not (*n* = 350, *p* > 0.05). Factors associated with the 3-year outcome in multivariate analyses were age, "work with force", and pain intensity (adjusted for gender, the presence of a psychosomatic or depressive problem and the presence of UEMS disorder diagnosed in 1993-1994; table 1), with a stronger association for disorders than for symptoms only.

This study is one of the first to jointly consider the occupational, personal and pain factors associated with a prognosis of UEMS symptoms or disorders, in a worker population performing highly repetitive tasks. Despite several limitations (no information on events during the years between examination, losses to follow-up, subjective self-assessment of risk factors, definition of

UEMS disorders based on clinical examination), these results were consistent with the few existing studies on prognosis: older age is known to be related to a poor prognosis,¹⁰⁻¹² as are pain intensity and duration at baseline,^{5,7,12-14} and the presence of disorders at baseline.^{10,15} The role of occupational factors in prognosis is still debated: some investigators have found that physical work factors are not associated with prognosis,^{11,16} whereas others have reported that they are.^{5,7,17} Job control and satisfaction at work were not associated with outcome in our study.

In conclusion, we found that work with force was associated with a poorer prognosis, as were age and pain intensity at baseline. Further studies, however, are needed to clarify the role of personal and work-related factors in determining the prognosis of UEMS disorders in working populations.

A Descatha,^{1,2} Y Roquelaure,³ J-F Chastang,¹ B Evanoff,⁴ D Cyr,¹ A Leclerc¹

¹INSERM, U687, Villejuif, F-94807, France and Université Versailles-Saint Quentin (UVSQ), Faculté de Médecine Paris-Ile-de-France-Ouest, Guyancourt, F-78280, France; ²UVSQ-AP-HP, Poincaré University Hospital, Occupational Health Department, Garches, F-92380, France; ³Laboratory of Ergonomics and Occupational Health, University of Angers, Angers, F-49000, France; ⁴Division of General Medical Sciences, Washington University School of Medicine, St. Louis, MO 63110, USA

Correspondence to: Alexis Descatha, Unité de pathologie professionnelle, CHU Poincaré, 104 bd R. Poincaré, 92380 Garches, France; alexis.descatha@rpc.aphp.fr

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Table 1 Multivariate analysis based on multinomial logistic model between the 3-year outcome and the baseline variables*

	Presence of UEMS symptoms alone in 1996-1997 (n = 43), OR (95% CI)	Presence of at least one UEMS disorder in 1996-1997 (n = 421), OR (95% CI)
Gender		
Men	1	1
Women	0.68 (0.27 to 1.72)	1.52 (0.80 to 2.86)
Age		
<30 years	1	1
30-45 years	1.35 (0.48 to 3.82)	2.86 (1.42 to 5.73)
>45 years	1.45 (0.37 to 5.67)	3.31 (1.32 to 8.29)
Presence of psychosomatic or depressive problems		
No	1	1
Yes	1.47 (0.27 to 7.95)	3.02 (0.89 to 10.23)
"Work with force"		
No	1	1
Yes	1.92 (0.78 to 4.76)	2.31 (1.27 to 4.21)
Pain intensity in 1993-1994		
No strong pain	1	1
Strong and unbearable pain	2.70 (1.05 to 5.00)	2.76 (1.52 to 6.91)
UEMS disorder in 1993-94		
No	1	1
Yes	0.53 (0.17 to 1.63)	2.09 (0.89 to 4.93)

UEMS, upper extremity musculoskeletal.

The multiple UEMS disorders and duration of pain highly associated with pain intensity, were not included in the model.

*The reference was workers with no symptoms and no UEMS disorders in 1996-1997.

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