

Nº13

# Boletín LADEP

Boletín Nº13 - 4º Trimestre 2011

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de Enfermedades Profesionales de Andalucía

## Boletín LADEP

*Boletín Nº13 - 4º Trimestre 2011 (Octubre - Diciembre)*

Boletín Editado por: Juan Luis Cabanillas Moruno

Boletín Maquetado por: José Remesal Báez

## REVISTAS INTERNACIONALES CONSULTADAS

- AMERICAN JOURNAL OF INDUSTRIAL MEDICINE
- ARCHIVES BELGES
- INDIAN JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL MEDICINE
- INDUSTRIAL HEALTH
- INTERNATIONAL JOURNAL OF HYGIENE AND ENVIRONMENTAL HEALTH
- JOURNAL OF OCCUPATIONAL HEALTH
- JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY
- MEDICINA DEL LAVORO
- OCCUPATIONAL AND ENVIRONMENTAL MEDICINE
- OCCUPATIONAL MEDICINE
- SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH
- THE NEW ENGLAND JOURNAL OF MEDICINE

## REVISTAS NACIONALES CONSULTADAS

- ARCHIVOS DE PREVENCIÓN DE RIESGOS LABORALES
- MEDICINA Y SEGURIDAD DEL TRABAJO
- REVISTA DE LA SOCIEDAD ESPAÑOLA DE MEDICINA Y SEGURIDAD DEL TRABAJO

**Artículo Nº1**

Revista: AMERICAN JOURNAL OF INDUSTRIAL MEDICINE - 54(10):800-810, 2011

**Título**

*Genotoxicity in vinyl chloride-exposed workers and its implication for occupational exposure limit (Genotoxicidad en trabajadores expuestos a cloruro de vinilo y su implicación en los límites de exposición laboral)*

**Autores**

Wei W, Yu-Lan Q, Jie J.

**Antecedentes**

Background. Vinyl chloride monomer (VCM) is a colorless gas under room temperature and has been mostly used to produce polyvinyl chloride (PVC) since the 1970s. It is classified by the International Agency of Research on Cancer (IARC) as a known human carcinogen (Group 1). In this study, genetic damage in VCM workers was evaluated in relation to their occupational cumulative exposure to VCM.

**Métodos**

Methods. Cytokinesis-block micronucleus assay was conducted in 229 VCM workers and 138 controls to detect chromosome damage in peripheral blood lymphocytes. The cumulative exposure dose (CED) of VCM was calculated based on the job type and duration of each worker and the workplace VCM concentration. Dose-response relationships between VCM CED and micronucleus frequency or chromosomal damage were evaluated, and benchmark doses (BMDs) estimated.

**Resultados**

Results. Dose-response relationships between VCM CED and chromosomal damage were obtained. The 95% lower confidence bound of BMD of VCM CED was 2.86 mg/m<sup>3</sup>-year for both genders combined, leading to an estimated exposure limit of 0.072 mg/m<sup>3</sup> assuming a work life of 40 years.

**Conclusiones**

**Conclusion.** VCM exposure may induce chromosomal damage at occupational exposure levels below the Chinese national occupational health standard. Further research is needed to better understand micronuclei as biomarker of VCM genotoxicity. Better dose-response assessment and BMD estimation are desirable in order to improve the quantification of occupational exposure limits for VCM with respect to non-cancer risk.

**Artículo Nº2**

Revista: AMERICAN JOURNAL OF INDUSTRIAL MEDICINE - 54(11):826-833, 2011

**Título**

*Effects of computer keyboarding on ultrasonographic measures of the median nerve (Efectos del manejo de teclado de ordenador en las medidas ecográficas del nervio mediano).*

**Autores**

Toosi K, Imprink B, Baker N.

**Antecedentes**

Background. Keyboarding is a highly repetitive daily task and has been linked to musculoskeletal disorders of the upper extremity. However, the effect of keyboarding on median nerve injuries is not well understood. The purpose of this study was to use ultrasonographic measurements to determine whether continuous keyboarding can cause acute changes in the median nerve.

**Métodos**

Methods. Ultrasound images of the median nerve from 21 volunteers were captured at the levels of the pisiform and distal radius prior to and following a prolonged keyboarding task (i.e., 1 hr of continuous keyboarding). Images were analyzed by a blinded investigator to quantify the median nerve characteristics. Changes in the median nerve ultrasonographic measures as a result of continuous keyboarding task were evaluated.

**Resultado**

Results. Cross-sectional areas at the pisiform level were significantly larger in both dominant ( $P = 0.004$ ) and non-dominant ( $P = 0.001$ ) hands following the keyboarding task. Swelling ratio was significantly greater in the dominant hand ( $P = 0.020$ ) after 60 min of keyboarding when compared to the baseline measures. Flattening ratios were not significantly different in either hand as a result of keyboarding.

**Conclusiones**

Conclusions. We were able to detect an acute increase in the area of the median nerve following 1 hr of keyboarding with a computer keyboard. This suggests that keyboarding has an impact on the median nerve. Further studies are required to understand this relationship, which would provide insight into the pathophysiology of median neuropathies such as carpal tunnel syndrome.

**Artículo Nº3**

Revista: AMERICAN JOURNAL OF INDUSTRIAL MEDICINE - 54(12):925-934, 2011

**Título**

*Development and application of a population-based system for workplace violence surveillance in hospitals (Desarrollo y aplicación de un sistema de base poblacional para la vigilancia de la violencia en hospitales)*

**Autores**

Arnetz J, Aranyos D, Ager J.

**Antecedentes**

Background. A unique and comprehensive reporting and population-based violence surveillance system in a multi-site hospital system is presented.

**Métodos**

Methods. Incidence rates and rate ratios (RR) were calculated by year, hospital, violence type, and job category in six hospitals, 2003-2008.

**Resultado**

Results. Incidence rates per hospital for the 6-year period ranged from a low of 1.52 to a high of 10.89 incidents/100 full-time equivalents (FTEs), with the highest risk at a hospital with an outpatient mental health facility (RR = 7.16, 95%CI = 5.17-10.26). Rates for worker-on-worker violence exceeded rates for patient-to-worker violence from 2004 to 2008. Mental health technicians (RR = 13.82, 95%CI = 11.13-17.29) and security personnel (RR = 2.25, CI = 1.68-3.00) were at greatest risk for violence.

**Conclusiones**

Conclusions. This surveillance system provides ongoing information on professional groups and hospital departments at risk and trends in violence reporting over time. It can be used to determine where appropriate violence prevention efforts are most needed, and to evaluate violence interventions.

**Artículo Nº4**

Revista: JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY - 2011; 6:24

**Título**

*Methods to recognize work-related cancer in workplaces, the general population, and by experts in the clinic, a Norwegian experience (Métodos para reconocer cáncer de origen laboral en lugares de trabajo, en la población general y por expertos en la clínica, una experiencia noruega)*

**Autores**

Langård S, Lee L.

**Antecedentes**

Background. In most countries, the numbers of work-related cancer identified are much lower than are the estimated total burden of cancer caused by exposure at work. Therefore, there is a great need to use all available practical as well as epidemiological methods for identification as well as to develop new methods of recognizing cases of work-related cancers.

**Métodos**

Methods. Primarily based on practical experiences from Norway, methods to identify cases of possible work-related cancers in the general population and at workplaces as well as methods to recognize more specific cases after referral to specialized clinics are reviewed in this publication.

**Resultados**

Results. Countries applying a number of the available methods to detect work-related cancer reach a reporting rate of 60 such cases per million, while other countries that do not employ such methods hardly identify any cases. As most subjects previously exposed to cancer causing agents and substances at work are gradually recruited out of work, methods should be versatile for identification of cases in the general population, as well as at work.

**Conclusiones**

Conclusions. Even in countries using a number of the available methods for identification, only a limited fraction of the real number of work-related cancer are notified to the labour inspectorate. Clinicians should be familiar with the methods and do the best to identify work-related cancer to serve prevention.

**Artículo Nº5**

Revista: JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY - 2011; 6:28

**Título**

*A case study on co-exposure to a mixture of organic solvents in a Tunisian adhesive-producing company (Un estudio de casos de coexposición a una mezcla de disolventes orgánicos en una empresa tunecina productora de adhesivos)*

**Autores**

*Gargouri I, Khadhraoui M.*

**Objetivos**

**Objetives.** To assess environmental and biological monitoring of exposure to organic solvents in a glue-manufacturing company in Sfax, Tunisia.

**Métodos**

**Methods.** Exposure of volunteer workers, in the solvented glue-work-stations, in the control laboratory and in the storage rooms of the finished products, was assessed through indoor-air and urine measurements. Informed consent of the workers was obtained.

**Resultados y discusión**

**Results and discussion.** The exposure indexes were found with high values in the solvented workshop as well as in the control laboratory and were respectively, 8.40 and 3.12. These indexes were also correlated with hexane and toluene indoor air concentrations. As to urine, the obtained results for the 2,5-hexandione and hippuric acid, metabolites of hexane and toluene, respectively, were in accord with the indoor-air measurements, with an average of 0.46 mg/l and 1240 mg/g of creatinine.

**Conclusiones**

**Conclusions.** This study assessed for the first time biological exposure to organic solvents used in Tunisian adhesive industries. Although values are likely to underestimate true exposure levels, some figures exceed European and American occupational exposure guidelines.

**Artículo Nº6**

Revista: MEDICINA DEL LAVORO - 2011; 102, 6: 494-501

**Título**

*Breath alcohol test in construction sites in the Province of Belluno: a campaign in favour of health promotion and surveillance and against drinking (Examen respiratorio de alcohol en obras en la provincia de Belluno: una campaña a favor de la promoción de la salud y de la vigilancia y contra la bebida)*

**Autores**

Marcolina D, de Marzo N, Riccio MT.

**Antecedentes y objetivos**

**Background and objectives.** Health impairment due to alcohol use and abuse is well known, in terms of relationship with traffic accidents and work accidents. In Italy almost 10 per cent of accidents at work involve intoxicated people injuring themselves and innocent victims. Alcohol abuse is a factor involved in determining severe accidents in the construction industry and epidemiological studies demonstrated a relationship between an elevated alcohol use and severity of accidents. Since in the Province of Belluno alcohol consumption may be elevated also at work, the two Occupational Health Units (SPISAL) in the province organized a campaign of information and surveillance against alcohol consumption at work in the construction industry. This report shows the campaign results, mainly in terms of breath alcohol tests performed in construction workers.

**Discusión y conclusión**

**Discussion and conclusion.** After an extensive information campaign we inspected 50 sites, where 105 construction companies were at work, and tested 294 workers by breath alcohol test. No-one refused the test. Only 2.7% construction workers were positive for the breath alcohol test, and the levels were not elevated. This study shows that the construction workers in Belluno Province are responsible drinkers and are well aware of the policy of prohibition of alcohol consumption at work.

## Artículo Nº7

Revista: OCCUPATIONAL AND ENVIRONMENTAL MEDICINE - 2011; 68:709-71

## Título

*Mortality and end-stage renal disease incidence among dry cleaning workers (Mortalidad e incidencia de enfermedad renal terminal entre trabajadores de limpieza en seco)*

## Autores

Calvert G, Ruder A Petersen M.

## Objetivos

**Objectives.** Objective Perchloroethylene (PCE) is a known animal carcinogen and probable human carcinogen. Dry cleaning exposures, particularly PCE, are also associated with renal toxicity. The objective was to follow-up a cohort of dry cleaners to evaluate mortality and assess end-stage renal disease (ESRD) morbidity.

## Métodos

**Methods.** This study adds 8 years of mortality follow-up for 1704 dry cleaning workers in four cities. Employees eligible for inclusion worked for  $\geq 1$  year before 1960 in a shop using PCE as the primary solvent. Life table analyses for mortality and ESRD morbidity were conducted. Only employees alive on 1 January 1977 were included in ESRD analyses.

## Resultados

**Results.** Overall cancer deaths were in significant excess in this cohort (standardised mortality ratio (SMR) 1.22, 95% CI 1.09 to 1.36). Oesophageal, lung and tongue cancers had significant excesses of deaths. Oesophageal cancer risk was highest among those employed in a PCE-using shop for  $\geq 5$  years with  $\geq 20$  years' latency since first such employment. Deaths from non-malignant underlying diseases of the stomach and duodenum were in significant excess. Hypertensive ESRD morbidity was significantly elevated in the entire cohort (standardised incidence ratio (SIR) 1.98, 95% CI 1.11 to 3.27), and among workers employed only in PCE-using dry cleaning shops for  $\geq 5$  years.

## Conclusiones

**Conclusions.** Employment in the dry cleaning industry and occupational exposure to PCE are associated with an increased risk for ESRD and for cancer at several sites. The employment duration findings for oesophageal cancer and hypertensive ESRD further support an association with PCE exposure instead of lifestyle or socioeconomic factors.

**Artículo Nº8**

Revista: OCCUPATIONAL AND ENVIRONMENTAL MEDICINE - 2011; 68:883-887

**Título**

*Unexpected excessive chronic obstructive pulmonary disease mortality among female silk textile workers in Shanghai, China (Mortalidad excesiva e inesperada por EPOC entre trabajadoras de tejidos de seda en Shanghai, China)*

**Autores**

*Cui L, Gallagher L, Ray R.*

**Objetivos**

Objectives. To investigate chronic obstructive pulmonary disease (COPD) mortality among textile workers.

**Métodos**

Methods. A total of 267 400 Chinese female textile employees were monitored for COPD mortality from 1989 to 2000. Textile factories in the cohort were classified into 10 industrial sectors. Age-adjusted mortality, standardized mortality ratios (SMRs) and 95% CIs were calculated by sector. In addition, RRs (HRs) adjusted for smoking and age were calculated for exposure to cotton and silk textile work compared with the other sectors in the cohort.

**Resultados**

Results. A majority of textile sectors had lower or similar COPD mortality (age-adjusted SMRs=0.58-1.15) compared with the general female population in the city of Nanjing, China. SMRs for cotton and silk workers were, respectively, 1.02 (95% CI: 0.81 to 1.28) and 2.03 (95% CI: 1.13 to 3.34). Compared with all other textile sectors in the cohort, there was greater COPD mortality among cotton workers (HR=1.40, 95% CI: 1.03 to 1.89) and silk workers (HR=2.54, 95% CI: 1.47 to 4.39).

**Conclusiones**

Conclusions. Elevated COPD mortality among cotton workers is consistent with previous reports of adverse respiratory effects of cotton dust. The higher rate of COPD deaths among silk workers was unexpected.

**Artículo Nº9**

Revista: OCCUPATIONAL AND ENVIRONMENTAL MEDICINE - 2011; 68:888-894

**Título***Gender differences in occupational exposure patterns (Diferencias de género en patrones de exposición laboral)***Autores**

Eng A, Mannetje A, Mc Lean D.

**Objetivos**

**Objectives.** The authors conducted a population-based survey to examine gender differences in occupational exposure patterns and to investigate whether any observed differences are due to: (a) gender differences in occupational distribution; and/or (b) gender differences in tasks within occupations.

**Métodos**

**Methods.** Men and women aged 20-64 years were randomly selected from the Electoral Roll and invited to take part in a telephone interview, which collected information on self-reported occupational exposure to specific dusts and chemicals, physical exposures and organisational factors. The authors used logistic regression to calculate prevalence ORs and 95% CIs comparing the exposure prevalence of males (n=1431) and females (n=1572), adjusting for age. To investigate whether men and women in the same occupation were equally exposed, the authors also matched males to females on current occupation using the five-digit code (n=1208) and conducted conditional logistic regression adjusting for age.

**Resultados**

**Results.** Overall, male workers were two to four times more likely to report exposure to dust and chemical substances, loud noise, irregular hours, night shifts and vibrating tools. Women were 30% more likely to report repetitive tasks and working at high speed, and more likely to report exposure to disinfectants, hair dyes and textile dust. When men were compared with women with the same occupation, gender differences were attenuated. However, males remained significantly more likely to report exposure to welding fumes, herbicides, wood dust, solvents, tools that vibrate, irregular hours and night-shift work. Women remained more likely to report repetitive tasks and working at high speed, and in addition were more likely to report awkward or tiring positions compared with men with the same occupation.

**Conclusiones**

**Conclusions.** This population-based study showed substantial differences in occupational exposure patterns between men and women, even within the same occupation. Thus, the influence of gender should not be overlooked in occupational health research.

**Artículo Nº10**

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT &amp; HEALTH - 2011; 37(6):464-472

**Título**

*Occupational social class and disability retirement among municipal employees - the contribution of health behaviors and working condition (Clase sociolaboral e incapacidad permanente entre trabajadores municipales: contribución de los comportamientos de salud y condiciones de trabajo)*

**Autores**

Leinonen T, Pietiläinen O, Laaksonen M, Rahkonen O, Lahelma E, Martikainen P.

**Objetivos**

**Objective.** The mechanisms through which a low socioeconomic position leads to disability retirement are not yet established. We examined, on the one hand, the associations between occupational social class and disability retirement due to all causes, musculoskeletal diseases, and mental disorders and, on the other hand, the contribution of health behaviors and working conditions to these associations.

**Métodos**

**Methods.** Middle-aged municipal employees from the Helsinki Health Study cohort baseline surveys in 2000-2002 (N=6516) were followed up until the end of 2010 for disability retirement. Retirement data were obtained from the registers of the Finnish Centre for Pensions and social class and covariates from the baseline surveys. Social class was categorized into managers and professionals, semi-professionals, routine non-manual employees, and manual workers. Cox regression analysis was used to calculate hazard ratios and their 95% confidence intervals.

**Resultados**

**Results.** The risk of disability retirement was generally higher among those in lower social classes with a strong gradient for all causes, an even stronger gradient for musculoskeletal diseases, and a weaker non-linear association for mental disorders. These associations were largely mediated through physical workload among both women and men and hazardous exposures particularly among men. In mental disorders, job control also mediated the association. Strenuous desktop work and job demands widened the social class differences particularly among men and in mental disorders. The contribution of health behaviors was modest.

**Conclusiones**

**Conclusion.** Improvements particularly in the physical working conditions but also the job control of those in lower social classes are likely to reduce socioeconomic differences in disability retirement.

## Artículo Nº11

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH - 2011; 37(6):473-480

## Título

*Factors influencing the decision to extend working life or retire (Factores que influyen en la decisión de prolongar la vida laboral o jubilarse)*

## Autores

Nilsson K, Hydbom AR, Rylander L.

## Objetivos

**Objective.** The aim of this study was to evaluate factors within nine identified areas that influence why some older workers want to (or believe they can) work until age 65 years or beyond, whereas others leave the workforce earlier.

## Métodos

**Methods.** The questionnaire-based, cross-sectional study included 1792 respondents aged 55-64 years, employed in the healthcare sector in Sweden. Using logistic regression, we investigated the associations between statements within nine areas and two outcome measures: (i) whether the individual wanted to work until age 65 years or beyond and (ii) whether the individual believed they can work until age 65 years or beyond.

## Resultados

**Results.** Of the 1792 respondents, 54% stated that they “can” and 38% that they “want to” work until age 65 years or beyond. Three areas were significantly associated with both these outcomes: worker health, economic incentives, and retirement decisions by life partners or close friends. Mental and physical working environment, work pace and skills/competence were associated with the “can” outcome, whereas work as an important part of life, working time, and management attitude to older workers were associated with the “want to” outcome.

## Conclusiones

**Conclusion.** Although there were differences regarding the associations between six of the areas and the two outcomes (ie, “can” and “want to” go on working until age 65 years or beyond), three of the areas were important to both outcomes. Among those, it was interesting that life partner or close social environment gave higher odds ratios than for example health, physical work environment, or work satisfaction.

**Artículo Nº12**

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT &amp; HEALTH - 2011;37(6):512-524

**Título**

*Comparison of two different methods for performing combination analysis of force and posture risk factors in an epidemiological study (Comparación de dos métodos diferentes de análisis de actuación simultánea de los factores de riesgo fuerza y postura en un estudio epidemiológico)*

**Autores**

Bao S, Howard N, Spielholz P, Silverstein B, Polissar N.

**Objetivos**

**Objective.** This study aimed to introduce a method of simultaneous combination analysis of multiple exposure parameters for large epidemiological studies of work-related upper-extremity musculoskeletal disorders (MSD) and compare this analysis method with the conventionally used job-level combination analysis method when applied in exposure-response analysis of work-related upper-extremity MSD.

**Métodos**

**Methods.** This study aimed to introduce a method of simultaneous combination analysis of multiple exposure parameters for large epidemiological studies of work-related upper-extremity musculoskeletal disorders (MSD) and compare this analysis method with the conventionally used job-level combination analysis method when applied in exposure-response analysis of work-related upper-extremity MSD.

**Resultados**

**Results.** The commonly used job-level combination analysis method resulted in significantly different combination exposure distributions compared to the simultaneous combination analysis method, although the absolute differences were small. Both methods showed some significantly higher combined force-posture exposures among CTS cases than non-cases.

**Conclusiones**

**Conclusion.** The simultaneous combination method provides more realistic distribution information on combined exposure parameters compared to the job-level combination method that has been commonly used in epidemiological studies. The newly developed simultaneous combination analysis method needs to be used in larger scale work-related upper-extremity MSD epidemiological studies to test its predictive power compared to the job-level combination analysis method.

**Artículo Nº13**

Revista: ARCHIVOS DE PREVENCIÓN DE RIESGOS LABORALES - 2011; 14 (4): 179-186

**Título***Evaluación de dos guías de valoración de riesgos laborales en el embarazo.***Autores**

Ronda E, Roel JM, Tascón E.

**Objetivos**

El reconocimiento en España de la prestación derivada de contingencia profesional por exposición a riesgos laborales en el embarazo originó que diversas instituciones elaboraran guías para orientar la actuación de los profesionales.

El objetivo de este trabajo es evaluar la calidad de los métodos utilizados en la elaboración de las guías de la Asociación de Mutuas de Accidentes de Trabajo (AMAT) y de la Sociedad Española de Ginecología y Obstetricia (SEGO), así como el contenido de sus recomendaciones.

**Métodos**

Estrategia de consenso formal en dos fases: valoración individual y reunión presencial. Para evaluar la calidad se utilizó el instrumento AGREE II estructurado en seis áreas generales (alcance y objetivos, rigor, participación, claridad, aplicabilidad e independencia). Se calcularon las puntuaciones estandarizadas por áreas (% sobre la máxima puntuación posible en cada área) y las medianas de respuesta por ítem. También se analizó la concordancia en las respuestas de los cinco evaluadores. Se evaluaron las similitudes y diferencias en las recomendaciones de ambas guías y la adecuación de las recomendaciones atendiendo a la experiencia profesional de cada evaluador y a la documentación científica disponible.

**Resultados**

Las dos guías obtuvieron una evaluación global similar de calidad (<50%). La aplicabilidad fue el área peor evaluada en ambas guías (7%). El porcentaje de acuerdo general entre evaluadores fue superior al 75%. Los evaluadores se mostraron más heterogéneos en la valoración de la adecuación de las recomendaciones presentes en las guías.

**Conclusiones**

Ambas guías deberían ser modificadas, especialmente para mejorar su calidad general y las recomendaciones incluidas.