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ILO Diagnostic and exposure criteria for occupational diseases. *Final Meeting of the Working Group and Public Conference, University of Milan, Italy, 26th - 30th June, 2017*

A group of international experts in Occupational Medicine met in Milan, Italy, at the end of June 2017 to finalize the International Labour Organization (ILO) Diagnostic and Exposure Criteria for Occupational Diseases (ILO-DECOD). On June 27th, a public event was organized to share the working group results with a broad audience, to exchange opinions, and discuss and improve the work.

Occupational diseases: contrasting or complementary definitions?

According to the ILO Protocol No. 155 of 2002 to the Occupational Safety and Health Convention, 1981, a disease can be defined as "*Occupational*" if "*it is contracted as a result of exposure to risk factors arising from work activity*" (6). Occupational diseases share important characteristics: known causal agents cause them; they affect distinct populations (workers); and coping strategies are available or can be developed. The most important characteristic of this group of diseases is that they *can be prevented*. An occupational disease is usually defined by two main elements: the clinical manifestation and the prior exposure to a specific agent present in the working environment (or work activity). Further, the disease appears in the exposed workers with a frequency higher than in the unexposed population. From a legal point of view, the definition of a disease as "occupational" or "work-related" is usually adopted on the basis of disease lists which are available at the national and supranational levels.

Lists of occupational diseases

The ILO Employment Injury Benefits Convention recommends each Member State to adopt a list of occupational diseases that at least includes the diseases listed in Schedule I to the Convention, which needs to be periodically updated (5). The last update of the ILO list was approved in March 2010, following a preparatory technical meeting held in Geneva in December 2009 (8). Alternatively, the Member States should adopt a general definition of occupational diseases or define other criteria to establish the occupational origin of a disease observed in a worker. A number of ILO Member States currently adopt a "*mixed*" system, which merges the advantage of the "general definition" and of the "list" systems, thus combining the benefits of each and minimizing their respective disadvantages. Unfortunately, the application of these concepts at the national levels has not been harmonized. Limiting the example to the European Union (EU) States, there are many differences among national lists, which are structured as "open" or "closed"; "per agent" or "per disease"; or "hybrid". The number of listed diseases varies from 37 to 90. The aims of the lists differ, and the most common are: reporting, compensation, and prevention. These differences result in significant discrepancies in reporting. In 1962 the European Union published the first European schedule of occupational diseases and in 1994 the first "Information notices on diagnosis of occupational diseases," the criteria for the diagnosis of these diseases (1, 2).

History of the ILO List and the Working Group for the definition of Diagnostic and Exposure Criteria

The International Labour Organization was founded in 1919, and in its first year of activity recognised anthrax as occupational disease (7). The first ILO list of occupational diseases was established in 1925, and included lead and mercury poisoning, in addition to antrax (3). In 1934 the revised list of occupational diseases included 10 items (4). The 1964 International Labor Conference introduced a separate Schedule (List of Occupational Diseases), appended to the Convention (5). The Schedule I was last updated in 1980, and in 2005 a meeting convened to update the List proposed two Occupational Disease Lists, one defined by governments' and workers' experts, the other by employers' experts. The two lists were identical in contents, but the employers' experts list included a set of general criteria for identifying occupational diseases and had no open items. The presence of two lists affected the possibility of approval by the ILO governing body. In 2010 the new ILO list of occupational diseases was approved in its current version. The new list includes 40 chemical agents, 6 physical agents, 8 biological agents, plus 11 respiratory, 3 skin, 7 musculoskeletal, 1 mental disease and 20 occupational cancers. For the first time, after each group of causal agents or diseases, a new heading was introduced, identified as "open items": this gives the opportunity to con-

sider as "occupational" also diseases not explicitly mentioned in the list but whose occupational origin is demonstrated.

In 2011 ILO appointed an international working group to prepare mini-monographs specifying diagnostic and exposure recognition criteria for each of the items in the ILO list, and for the "open items". The working group successfully retrieved scientific, technical, and regulatory information and used expert opinions to summarize the evidence.

Each of the 112 monographs is divided into six sections:

(i) General characteristics of the causal agent/disease
(ii) Occupational exposures
(iii) Short profile of the toxic agent/disease
(iv) Name(s) of the disease(s) and the related ICD-10 codes
    1. Acute, chronic and long-term effects
    2. Criteria for diagnosis
    3. Minimum levels of exposure
    4. Latency and induction period
(v) Key elements for prevention
(vi) Further reading

An added value of the work of the expert group was the synergy between the ILO criteria for diagnosis and prevention of occupational diseases with the new edition of World Health Organization (WHO) International Classification of Diseases (ICD) 11 which is due by 2018 and is already available as beta-version online (9).

Public event and discussion

More than 70 participants from 20 different countries participated in the public event held on June 27th, 2017 to present and discuss the new ILO diagnostic criteria. Reports were presented by: Shengli Niu (ILO), Jukka Takala (ICOH), Claudio Colosio (University of Milan), Anil Adisseh (Canada), Tar-Ching Aw (UAE), Jorma Rantanen (Finland), Swen Malte John (Germany), Linda Forst (WHO), Igor Bukhtiyarov (Russia), Zhang Min (PRC), Annet F. Lenderink (NL), and Francesco S. Violante (SIML).

One opinion was unanimous among the participants: having an official ILO list and criteria for the diagnosis of occupational diseases is very important for the care of workers' health all over the world. Many participants underlined the need to have criteria not only on how to diagnose but also on what makes a disease "occupational". Under-reporting stands as one of the biggest challenges of occupational medicine. A possible solution was identified in connecting ICD codes with the ILO list and criteria, and building a flagging system that suggests to physicians that a disease might be occupational in its origin. Another important aspect on which all participants agreed was the need for collaboration between general practitioners, different specialists, and occupational physicians. The ILO list and criteria might help governments in introducing changes and innovations in their lists of occupational diseases.

Stefan Mandic-Rajcevic
Federico Maria Rubino
Claudio Colosio
Department of Health Sciences of the
University of Milan
International Centre for Rural Health
of San Paolo Hospital, Milan

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Esposizione occupazionale ad amianto e rischio di colangiocarcinoma: una nuova ipotesi dalla ricerca epidemiologica

Il colangiocarcinoma è una forma rara di tumore maligno che può originare dai dotti biliari intraepatici (colangiocarcinoma intraepatico, CI) o dalle vie biliari extraepatiche (colangiocarcinoma extraepatico, CE). Mentre l'incidenza di CE è stabile, negli anni più recenti si è osservato un marcato aumento della incidenza di CI che non è del tutto spiegabile da fattori eziologici noti quali malattie infettive, ereditarie (malattia di Caroli, di Wilson, emocromatosi etc), cirrosi, colangite sclerosante e abitudini di vita (alcol, fumo, obesità). Questo quadro ha acceso l'interesse verso lo studio di possibili fattori occupazionali e ambientali. Alcuni studi hanno evidenziato un'aumentata incidenza di CI in lavoratori dell'industria della stampa esposti a 1,2-dicloropropano e diclorometano (3). La prima segnalazione di una possibile associazione tra CI ed esposizione ad amianto deriva da uno studio caso-controllo ospedaliero condotto dalla Scuola di Bologna (1), basato su un piccolo numero di casi, che ha evidenziato un incremento di rischio per CI di circa quattro volte superiore in lavoratori esposti ad amianto verso non esposti. L'ipotesi è stata ulteriormente esplorata in uno studio caso controllo innestato nella Coorte NOCCA (Nordic Occupational Cancer Study), i cui risultati sono stati recentemente pubblicati (2). Lo studio ha esaminato 1458 casi di CI, 3972 casi di CE e rispettivamente 6773 e 18221 controlli appaiati per età, sesso e paese di residenza. I dati sulla occupazione sono stati derivati da informazioni raccolte al censimento e l'esposizione ad amianto è stata valutata utilizzando una matrice mansione esposizione (NOCCA JEM). Sono state esaminate quattro diverse classificazioni di esposizione ad amianto: esposti vs. non esposti; massima intensità di esposizione (0; <0.11; 0.11-0.79; ≥0.80 f/mL); durata della esposizione (0, <21, 22-41; ≥42 anni); esposizione cumulativa con due categorizzazioni, la prima basata sui quartili delle distribuzione della esposizione negli esposti: (0; 0.1-1.1; 1.2-14.9; ≥15 f/mL/anno), la seconda utilizzando intervalli di esposizione di uguale ampiezza (0, 0.1-4.9; 5-9.9; 10-14.9; ≥15 f/mL/anno). Per nessuna delle classificazioni utilizzate è stata osservata una associazione con CE, mentre un aumentato rischio di CI è stato evidenziato all'aumentare della esposizione cumulativa ad amianto: 0,1-4.9 f/mL x anno OR=1.1 (95%IC 0.9-1.3), 5-9.9 f/mL x anno OR 1.3 (95%IC 0.9-2.1), 10-14.9 f/mL x anno OR=1.6 (95%IC 1.0-2.5), ≥15 f/mL x anno OR=1.7 (95%IC 1.1-2.6). Non è stata riscontrata una relazione tra durata della esposizione e rischio di CI. Gli autori discutono punti di forza e possibili limiti dello studio. Tra questi ultimi, in particolare la stima della esposizione (limitata alle età 20-65 anni e derivata da informazioni censuali) e la mancanza di informazioni su possibili confondenti (es, malattie epatiche pregresse, o alcol) che però non ritengono possano spiegare del tutto l'eccesso osservato soprattutto nelle categorie di maggiore esposizione. Benché la presenza di fibre di amianto nel tessuto epatico e dotti biliari sia stata descritta in letteratura in soggetti con esposizione professionale o ambientale, rimane da chiarire come le fibre possano raggiungere il tessuto epatico dove potrebbero produrre uno stato di infiammazione cronica e conseguente abnorme proliferazione cellulare e apoptosi. L'ipotesi di una associazione tra esposizione ad amianto e colangiocarcinoma necessita di ulteriori conferme attraverso studi che permettano di valutare accuratamente la storia espositiva dei soggetti e che raccolgano informazioni anche su altri fattori di rischio.

Angela C. Pesatori
Dipartimento di Scienze Cliniche
e di Comunità, EPIGET Lab
Università di Milano

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