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Introduction

Research in epidemiology is gaining momentum in the Asia-Pacific region for establishing the coping strategies in dealing with rapidly increasing work-related health risks among workers[1]. Occupational epidemiology, now widely applied in the region, is widening its scope from a conventional single toxicological factor analysis towards the assessment of the combined effects of different work-related agents. Occupational stress, work organization, social and family factors, cross-cultural differences as well as the well known chemical or physical agents have increasingly been recognized as important risks affecting the health conditions of various workers in the region.

Roles of epidemiology in the Asia-Pacific

Epidemiology is expected to play some important roles in upgrading occupational health measures in the Asia-Pacific region. The first important role of epidemiology in the Asia-Pacific context is to facilitate the identification of occupational diseases and the wider coverage of occupational health measures. While many countries in the region have made tremendous efforts in discovering the magnitude of occupational diseases, it is unfortunately true that the existing occupational diseases statistics in many countries are based on grossly under-reported data. The systematic approaches for identifying existing occupational diseases through epidemiological research methods are required.

The second important role of epidemiology in the Asia-Pacific region is its contribution to the priority setting in occupational health policy[2]. It is important to know the magnitude of various occupational risk factors and the synergistic effects of the two or more agents, so that a clear target for controlling these risk factors can be established.

The third role of epidemiology expected in the region is the monitoring and investigation of newly emerging work-related health risks. Because of a wide range of work-related health risks arising in the region, unknown risk factors or work-related illness might occur sometime[3]. Epidemiologic research can help clarify some local factors characterizing the people's lifestyle such as tropical climatic conditions, nutritious factors, psycho-social factors, local infectious diseases or genetic effects of the local population that might increase the adverse effects of these risks.

Health risks revealed by epidemiological research in the Asia-Pacific

Research development in epidemiology has revealed the risks of several occupational diseases in the region. Epidemiologists in the region have been setting a wide variety of occupations as their research targets.

Manufacturing and service sectors
Existing statistical records might be a useful source for knowing the characteristics of occupational diseases. In Singapore, industrial dermatitis cases compiled in the compensation files were analysed from epidemiological viewpoints[4]. The analysis of the reported 429 cases showed that more than half of the cases occurred in metal products, machinery and equipment factories using solvents and coolants while the second high risk groups were transport industry workers in contact with oils and greases. It was of particular interest that the reported cases of industrial dermatitis increased after it became a notifiable disease under the Factory Act. This research indicated that systematic registration of occupational diseases could provide valuable data for the risk characterization of occupational diseases.

The cotton textile industry is growing in the Asia-Pacific region. Many workers are exposed to cotton dust and thus subject to a high risk of contracting byssinosis. A six-year follow-up study concerning the workers exposed to cotton dust was conducted in Thailand[5]. The study revealed that among the observed 300 workers, 60 cases of byssinosis were observed during the six-year interval. Overall six-year incidence of the onset of byssinosis was 20 per cent (28.3 per cent in
Agriculture and forestry
An increasing amount of pesticides is widely used in the Asia-Pacific region. Epidemiological studies assessing the health effects of pesticide usage are providing an important basis for preventive programmes. In Malaysia, a unique prospective study covering 3,041 subjects in padi farming areas was conducted[7]. The study compared the seasonal differences of symptoms among the local people. The incidence of cough and fever were significantly higher during the paddy growing season, while the incidence of conjunctivitis was highest during the harvesting season. The relative risks and confidence interval of the studied symptoms related to pesticide exposure were 1.7 (1.2 - 2.2) whereas symptoms related to padi dust exposure was 1.5 (1.2 - 2.0). The study concluded that attention should be paid to both pesticides and padi dust as the potential health threatening factor of the local people.

Collaborating efforts for identifying the possible health risks among the forest workers using chain saws in Indonesia and Papua New Guinea have been formulated[8]. This study covering 97 chain saw operators did not find clear evidence of vibration-induced white finger. However, the peripheral circulatory function tests revealed some dysfunction in the “more than five years of vibration exposure” group. In conclusion, the study group could not deny the possibility that the occurrence of subclinical dysfunction of peripheral circulation was caused by chain saw operation in the tropics.

Occupational cancer
Intensive efforts have been made in China for identifying increased cancer risks related to chemical and dust exposures. A case-control study conducted among iron and steel workers in Anshan, China revealed that steel workers with long-term exposure to workplace pollutants had a 40 per cent increased risk of both lung and stomach cancers[9].

In Shanghai, China, over 13,000 stomach cancer cases reported to the Shanghai Cancer Registry between 1980 and 1984 were compared with 1982 census employment information[10]. Calculating the standardized incidence ratios for stomach cancer, several occupations were found to have significantly increased risks for stomach cancer. The possible high-risk occupations were grain farming and several jobs involving exposures to metal, wood and other dusts and to fossil fuel combustion products. Similar efforts for revealing occupational cancer risks were also made in silica and dust exposed workers[11,12].

References

