Miscellany

08C.1 A PROBABILISTIC BIAS-ANALYSIS METHOD FOR EVALUATING DISEASE MISCLASSIFICATION IN A HISTORICAL COHORT MORTALITY STUDY OF TRICHLOROPHENOL WORKERS

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Occupational epidemiologists have long considered death certificate inaccuracies a critical issue when conducting historical cohort mortality (HCM) studies. However, the vast majority of these types of studies do not include a quantitative assessment of the impact of disease misclassification on study results. We developed a probabilistic bias-analysis method to evaluate the effect of disease misclassification using ischemic heart disease (IHD) mortality data from a cohort study of New Zealand trichlorophenol workers exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). The sensitivity and specificity of IHD death certificate diagnoses in high income countries, as described in 14 peer-reviewed validation studies, were used to construct bias parameter distributions for nine simulation scenarios. We defined the parameter distributions for a non-differential disease misclassification scenario first, using a beta distribution for the sensitivity parameters and a maximum extreme distribution for the specificity parameters. To evaluate the potential effects of differential misclassification, we also varied the distribution peaks for the highest and lowest exposure categories. As before, a beta distribution was used for all the sensitivity parameters. However, both maximum and minimum extreme distributions were used for specificity parameters in these scenarios. For each scenario, the specified sensitivity and specificity distributions were sampled using Monte Carlo techniques. The inverse matrix of the sampled classification proportions was then multiplied by the vector of observed cell counts to generate a vector of cell counts adjusted for disease misclassification, which were used to calculate an adjusted odds ratio. When misclassification was differential, the geometric mean adjusted odds ratio ranged from 1.9 to 4.9 with study error resulting in bias both away from and toward the null. Under the assumption of non-differential misclassification, the geometric mean adjusted odds ratio was slightly smaller than the unadjusted estimate. Probabilistic bias analysis can be a useful tool for evaluating study error in historical cohort mortality studies.

08C.2 IS CHRONIC KIDNEY DISEASE OF UNKNOWN CAUSE (CKDu) AN OCCUPATIONAL OR AN ENVIRONMENTAL DISEASE?

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Chronic Kidney Disease of undetermined cause (CKDu) is affecting agricultural communities in Central America, South Asia, and possible other parts of the world. Various possible causes have been suggested, including heat/dehydration, pesticides, infections, and water contamination/heavy metals. In particular, it has been suggested that CKDu is an occupational

disease caused by various working conditions (heat stress, pesticides), and that there is a global epidemic. The debate has become increasingly polarised, since most of the various protagonists are arguing in a data-deficient vacuum. We still don't know, at least on a global level, who gets this disease, or if the disease is the same in different parts of the world. However, evidence is beginning to emerge, based on studies that we are conducting in Nicaragua, Peru, Malawi, India, and Sri Lanka. These new findings indicate that: (i) the disease does not exist globally, but appears at this stage to be confined to Central America and South Asia (India, Sri Lanka) – there are other regions of the world which are also hot and use large amounts of pesticides where the disease does not occur; (ii) it is more common in agricultural areas, but is not confined to sugar cane workers, and also occurs in women, albeit at a lower rate; (iii) there is a very clear distinction between community members who experience marked declines in kidney function and those who do not. Taken together, this emerging evidence indicates that CKDu may be an environmental rather than an occupational disease, and that the environmental cause(s) are unknown at this time. This has important implications in terms of what research we do next to try and find the cause(s) of this condition.

08C.4 EFFECTIVE GROUP EDUCATION FOR HEALTHY DIETARY HABIT USING RESULTS OF A DIETARY QUESTIONNAIRE IN OCCUPATIONAL FIELD: AN INTERVENTION STUDY

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Introduction In Japan, a health promotion education in occupational field is often performed in groups because of the limited number of occupational health workers. When using individual result obtained from a dietary questionnaire, even in a group education, it may be possible to educate individually and may lead to behavioral change of employees effectively.

Method A non-randomized intervention study was conducted in 2016. Group education using the results of 'Brief-type self-administered diet history questionnaire (BDHQ)' from which information for nutrient intake, food intake and dietary habits can be obtained, were compared with usual group education among selected companies. The dietary questionnaire was used in 3 companies with 269 employees (intervention group) and 2 companies with 111 employees were educated normally (control group). Alteration in stages of behavior change in each person were compared between two groups.

Result Among employees who had originally thought that their dietary habits are healthy, significantly more people in the intervention group had willingness to change behavior than people in the usual education group ($p=0.008$), while no significant difference could be found in employees who had originally thought that their dietary habits are unhealthy ($p=0.44$). Nevertheless, among individuals who originally recognized their diet as unhealthy and had willingness to change behavior, the number of employees who selected 'could understand the issue of your own dietary habits' as the reason for changing behavior in intervention group were significantly more than that of control group (33% vs 15%. $p=0.02$).