The coroner's necropsy – an epidemiological treasure trove

The coroner's necropsy is suited to classic epidemiological studies, not only for those conditions leading to death but also for coincident disease. In the general population there is an iceberg of hidden pathology. This pathology may occur as pre-symptomatic, quiescent or burnt out disease. These silent processes do not necessarily appear in returns generated from hospitals or other clinical sources. The changing pattern of this disease can provide clues to causation as well as early signs that shifts in health care provision may be required.

As the coroner's investigation is a local enquiry the information is of direct relevance to the community from which it is generated. Clustering of pathology according to micro-geography of a city might give aetiological clues. For example, is there a relation with local industry? Or with sources of pollution? Or with ethnic or other community subsets? Furthermore, locally produced and available statistics encourages early and responsive health care planning, which is of benefit to the entire community.

While population epidemiology has been primarily concerned with determinants of health status of large populations, clinical epidemiology tends to deal with diagnostic and therapeutic aspects in subpopulations of diseased individuals. The coroner's necropsy also has a role in this area.

Sensitivity and specificity are characteristics which have been used to appraise a test. Together they assess the ability to pick up a target condition, or they can evaluate a new test according to a gold standard. These characteristics may be applied to a clinical diagnosis and the 'gold standard' necropsy result. For a population of patients dying in hospital, such measures indicate clinical diagnostic accuracy. It must be conceded that the reason many of these cases are referred to the coroner is that the cause of death is unknown. Even so, there will be a provisional working diagnosis or diagnoses. Thus, calculation of sensitivity and specificity for a variety of pre-mortem clinical diagnoses might form the basis for a comparison of performance between hospitals.

Care must be taken with the use of information generated from coroners' necropsies. Firstly, there will be bias in selection of deaths which are referred to the coroner and which of these are then subsequently the subject of a postmortem examination. There are clearly social pressures exerted by relatives on their doctors to avoid such examinations. Where a death has been reported but is not associated with suspicious circumstances, gentle persuasion by the coroner's office may lead to issue of a death certificate without necropsy. The medical attendants themselves may wish to avoid the spectre of an inquest. Calder has shown that 75% of the mortality due to hip fracture was under certificated.3

Secondly, the yield of necropsy data and its accuracy is the subject of concern. Postmortem examinations are not yet open to rigorous audit, the exception being for accredited forensic pathologists. At least for examinations of medical interest, clinico-pathological discussion with clinicians results in a form of peer review. No such review takes place with most coroners' cases.

O'Sullivan, in this issue, documents the substantial amount of information present in coroners' necropsies. It is unknown how much of this is being missed because of substandard examinations. The national enquiry into peri-operative deaths for 1992–93 rates 28% of all necropsy examinations as poor or not acceptable. The enquiry also noted that the majority of cases lacked a histology report; in 46% this resulted in a significant detriment in diagnostic value of the postmortem examination.

Information is also lost as a result of inadequacies of recording. Proposals have been made to modify certificates to include extra information. Since 1985, however, any child dying within the first 28 days of life is issued with a certificate which takes the following form:

Cause of Death
a) Main diseases or conditions in infant.
b) Other diseases or conditions in infant.
c) Main maternal diseases or conditions affecting the infant.
d) Other maternal disease or conditions affecting infant.
e) Other relevant causes.

A certificate according to similar lines could be issued after completion of a necropsy instead of the traditional medical certificate of cause of death. It is sometimes argued that waiting for necropsy results delays unacceptably the issue of a death certificate, but in practice, more often than not the certificate is completed after the necropsy results are known.

The way forward for necropsy based epidemiological studies is perhaps to target a condition worthy of attention and channel efforts into generating high quality necropsy
data. The coroner's necropsy is a treasure trove of information, which should not remain hidden because of an indifferent postmortem examination or obscured by deficient recording of data.

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