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HANDOUT

Trainees Session - Meet the Experts

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“The role of the pathologist in sudden cardiac death”

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C A R D I A C E X A M I N A T I O N

While examining post mortem reports in a cardiac sudden death study (1) I became aware of the variable quality of autopsies and in particular the way the cardiovascular system was examined. This variable quality in coronial autopsies has since been reiterated by the NCEPOD study which emphasised that sudden cardiac death cases are poorly investigated especially when the question of cardiomyopathy or cardiac hypertrophy arises. (2) This is despite published guidelines for pathologists investigating sudden death (3), (4) and specialist books on the subject (5)

It is important to examine the heart carefully at autopsy in situations of sudden cardiac death particularly in young people where inherited conditions are important (6-8)

Autopsy practice is changing in the modern world. Diseases of the brain and heart account for the majority of deaths in developed countries Yet the heart and brain remain very emotive organs for the public and underlie the reluctance of relatives to agree to their retention at autopsy (9). It also highlights the public outcry concerning the retention of these organs without consent in children in the UK which led to a precipitous fall in hospital autopsy rates. There is also a marked fall in hospital autopsy rates in USA. (10)

In UK and USA most autopsies are performed at the request of the coroner or medical examiner (11) with few in hospital autopsies being carried out. 23% of all

deaths in England have an autopsy the majority being coroners cases amounting to 124,000 per year.(12) The majority are carried out by a local pathologist working in a general hospital or a forensic pathologist. Retention of tissues and organs from a coronial autopsy without relatives consent is permissible under Coroner's Rule 9, to confirm the cause of death. In practice, coroners vary widely as to how they interpret that rule, in many instances leaving it up to the family to decide. Pathologists are thus caught in a difficult situation. I believe they must prepare in advance especially with young sudden deaths and must be confident in making a case to retain heart tissues in order to provide as accurate a cause of death as possible. They must communicate with the family before undertaking the post mortem to prepare them for the possibility of retention of the heart and other tissues. The help of a well trained coroner's officer is essential in these situations. Medical examiners in USA can retain all the tissues they want and there have been no retention problems there.

All autopsy practitioners should be able to perform a basic examination of the heart and its connecting vasculature – akin to the minimum dataset for a cancer report. Minimal information with limited formulaic descriptions of the heart with no measurements is to be avoided. It is no longer acceptable to simply do a basic routine cardiac dissection but approach the heart armed with prior information about the patient background and circumstances of death. Information from the general practitioner, family and witnesses is obtained usually from coroner's office or medical examiners office, particularly in cases of unexplained sudden death. Communication with relevant cardiac centres and access to clinical records may also be important when patient has previous interventions or surgery.

Certainly, the consideration of family consent is essential before the autopsy and critical if considering retaining the heart and other tissues. Specialist investigation including culture / transport media for electron microscopy, microbiology and DNA extraction should be taken into account prior to the commencement of the dissection in order to optimize sampling. Pathologists argue that these facilities are not available in many public mortuaries where the bulk of autopsies are carried out. I believe a pathologist approaching a post mortem in circumstances where the dead person has previously had no medical history is failing in their duty if they do not approach the case as paediatric pathologists approach a sudden infant death where there are established protocols to be followed. (13)

Digital photography is a quick useful and cheap adjunct to autopsy diagnosis, and camera facilities should be available in every mortuary. A digital image of mid-low ventricular transverse section and other views of the heart are very helpful as a permanent record and for referral when the heart cannot be retained. In sudden cardiac death organ retention and referral should be regarded as the 'gold standard', with many cardiac pathologists being prepared to examine, block and turn around cases within a few days. Families can be reassured that the bulk (usually more than 90%of the cardiac tissues) can be reunited with the body in such circumstances.

Reference List

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