

Universal precautions provide protection during autopsies of infected patients.

The current COVID19 pandemic has raised concerns about the safety of laboratory personnel who handle tissue samples harboring pathogens. Laboratories have developed universal precaution protocols to limit exposure to pathogens and protect pathology personnel, including those working in anatomic pathology. A paper studied the effectiveness of universal precautions by spiking patient samples with a non-pathogenic microbe and submitting the sample for routine lab testing. In this simulation, there was about 1% contamination of equipment, providing reassurance of the effectiveness of standard prevention measures (1).

While infectious diseases have always been present in pathology samples, the AIDS epidemic increased awareness of the need for robust safety protocols. Universal precautions were widely adopted including the use of cut resistant gloves, which significantly decrease hand injuries (2). The danger of performing autopsies on AIDS patient is virtually non-existent, with only 1 reported case of autopsy transmission of HIV to a pathologist (3). The exposure to other infectious diseases, such as hepatitis is even greater than the theoretical transmission of HIV (4). This highlights the need to use universal precautions for all autopsies, not just those considered to be potentially infectious.

The current SARS-CoV2 is predominantly a respiratory pathogen so comparisons should be made to the closely related pathogens, i.e. the original SARS virus (SARS-CoV) and the Middle East Respiratory Syndrome virus (MERS-CoV). The published data reassures that the risk of transmission to pathologists is low. A report showed that there were no cases of the original SARS transmission to healthcare workers in the USA, even though there were SARS patients in the USA (5). An epidemiology report examined the transmission of SARS-CoV and MERS-CoV to health care personnel. This report documented that as of August 2015, world wide there were 8096 cases of SARS-CoV and 1382 cases of MER-CoV. Despite the number of patients, there did not appear to be any cases of coronavirus transmission to laboratory personnel (6).

With the current COVID19 disease, environmental contamination has been documented (7). The SARS-CoV2 virus has been found in multiple tissues at autopsy, although the highest concentrations were in the lungs and small bowel (8).

Limiting bone sawing has been suggested since both human and veterinary autopsy procedures showed the production of aerosols (9, 10). Despite these concerns, appropriate protocols, such as the use of purified air powered respirators and placing the head inside a transparent plastic bag, provide protection from personnel in the autopsy suite. These protection mechanisms were established for doing brain harvests in patients with potential Creutzfeld-Jacob Disease.

Currently there is a shortage of personal protective equipment (PPE) and appropriate safety protocols use PPE. Reducing the number of people present during the autopsy is a good idea, to conserve these resources.

Even with a low danger of transmitting disease, is there value in performing autopsies on SARS-CoV2 infected patients? There is substantial public health value in performing autopsies during this time as outlined in a 2019 New Eng J of Med commentary (11) particularly in patients with infectious diseases. For example, during the 1918 Spanish flu pandemic a review of autopsy material showed that bacterial pneumonia caused the majority of deaths (12). A more recent example comes from autopsies in patients with HIV that revealed a striking incidence of tuberculosis (13). In both of these examples, autopsies provided information that has value in treating patients.

Conclusion: Autopsies may provide important public health information during the COVID-19 outbreak. With appropriate precautions, there is limited danger to autopsy personnel. All autopsies should use a universal protocol to protect pathology personnel, regardless of the known presence of infectious disease.

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