Letters to the Editor

Creutzfeldt-Jakob Disease Agent

To the Editor:

In a letter which discussed the problems of decontaminating medical equipment after contact with Creutzfeldt-Jakob disease (CJD) agent it was stated that autoclaving instruments at 121°C and 15 psi for one hour will result in sterilization.[1] This statement is dangerously misleading. Although CJD infectivity has been inactivated by such an exposure,[2] scrapie agent has survived this[2] and even more rigorous autoclaving procedures.[3] Scrapie is the model for the group of unconventional transmissible diseases to which CJD belongs, and it is better to base decontamination standards for CJD on scrapie since there are cloned strains available that differ in their thermostability.[4] Similar strains of CJD may exist but these agents have not yet been cloned into distinct strains. Consequently the current recommendation for CJD decontamination in the United States is gravity-displacement autoclaving at 132°C[5] for one hour. This recommendation is based upon scrapie studies in hamsters[2]; experimental work with scrapie in mice[3] formed the basis for the current UK standard which is porous-load autoclaving at 134-138°C for 18 minutes.[6]

It was also said that a one-hour exposure to 0.5% sodium hypochlorite is effective and is useful for situations where autoclaving is impossible.[1] However, even the use of undiluted domestic bleach (5% sodium hypochlorite) is not always effective against the CJD agent.[5] Experiments with scrapie agent have shown that sodium hypochlorite can be effective if the exposure time is prolonged or the concentration is increased considerably," but this also increases the problem of metal corrosion. Chlorine-releasing disinfectants containing sodium dichlorisocyanurate might be useful because they are less corrosive but their effect on scrapie infectivity is not known.

Although as indicated in the letter, a one-hour exposure to 1N sodium hydroxide has been reported to be effective,[7] this requires verification because contradictory data exists.

In conclusion, it is relevant to add to this information a comment relating to the safe handling of CJD material in the histopathology laboratory. CJD and scrapie infectivity in brain is little affected by formol fixation, and it has been suggested that autoclaving such brain tissue will render it safe for subsequent handling and processing.[9] Although the architecture of formol-fixed scrapie brain tissue remains remarkably good after porous-load autoclaving at 134-138°C,[10] the prior fixation confers considerable protection against inactivation, and there is little reduction in infectivity after autoclaving at 134° for 18 minutes.[11]

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