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CREUTZFELDT-JAKOB DISEASE AND RELATED DISORDERS

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Part 3

EMBALMING CONCERNS: It is apparent that the chances of the normal population contracting Creutzfeldt-Jakob disease is very unlikely. It is not a readily transmissible disease by normal routes (as demonstrated by KURU and years of research with scrapie). The problem remains, however, that it is a very insidious and fatal disease. This has caused much concern among embalmers, autopsy pathologists, neurosurgeons and morgue workers. The number of exposures with these individuals is considerable and the infectious titer of some body fluids is high. In addition, there is the real problem of being presented with an Alzheimer's or senile case that is in fact undiagnosed Creutzfeldt-Jakob disease. These factors combined with the extraordinary survivability of the agent demands that definite safety precautions above and beyond standard be utilized. These "extreme precautions" appear to be the only prudent method to adequately deal with this real problem.

When dealing with a Creutzfeldt-Jakob disease case, the following procedures will insure a reasonable degree of safety and make the situation manageable. When making the removal utilize full universal precautions with the use of high-level (glutaraldehyde-based) disinfectant spray for all body surfaces and orifices. Do not use formaldehyde products or other weaker disinfectants. After transfer to the embalming room, sacrifice all protective equipment used during the removal. Hopefully the body will have had a complete autopsy and the brain and spinal cord will be removed. If this is so, the greatest risk of infectivity is already gone. Other body fluids are potential problems but not nearly to the extent of the brain and nervous tissue.

Utilize full universal precautions during the embalming and use a full face shield and a sturdy HEPA type mask with a tight seal. Use armored kevlar type undergloves with double thick latex gloves as overgloves. If any tears or leakage is visible during the embalming procedure - immediately remove the top layer gloves and double reglove. Use the minimum instruments necessary or use disposable instruments, if available. If possible, sacrifice all instruments used after the embalming. Thoroughly retreat the body with a high level (glutaraldehyde-based) disinfectant spray prior to embalming. Embalm arterially with a glutaraldehyde/ phenol based fluid and avoid the use of formaldehyde products. Cavity embalm with a glutaraldehyde/ phenol based fluid for maximum sanitation and disinfection and avoid the use of formaldehyde based fluids.

Take extra care to avoid blood and body fluids splashing or spillage. After embalming is complete, carefully wash the body with soap solution and then liberally spray surfaces of the body with a high-level disinfectant spray (glutaraldehyde based). Sacrifice all protective gear used in the embalming. For those instruments that must be kept, use the following procedure: if possible autoclave after washing with disinfectant soap, at 132 degrees C for at least one hour. If autoclaving is not possible, treat the instruments by boiling in a 3% SDS (sodium dodecyl sulfate) solution for 15 minutes followed by transfer to a warm 1N NaOH (sodium hydroxide) solution for one hour and followed by a 8-10 hour treatment in a 2% activated glutaraldehyde based approved sterilant solution.

TABLE 4
EFFECTIVE DISINFECTION TREATMENTS

STEAM AUTOCLAVING AT 132° C for \geq 1 HOUR

FORMIC ACID 60-80% - 2 HOURS

3M TRICHLOROACETATE - 2 HOURS

PHENOL 50-80% - 2 HOURS

SDS (SODIUM DODECYL SULFATE) 3%, 100° C \geq 3 MINUTES

For surfaces in the embalming room, treat with boiling 3% SDS for 3-5 minutes with scrubbing then dispose of sponge. Follow with a 1N NaOH rinse of warm solution followed after rinsing with water by a liberal application of an approved 2% activated glutaraldehyde based sterilant solution or glutaraldehyde based high level disinfectant spray and then allow all surfaces to air dry. Disinfect the aspirator and hose by use of a boiling 3% SDS solution for at least 3 minutes, then rinse. Follow with a treatment of an approved 2% activated glutaraldehyde based sterilant and allow to remain in the aspirator and hose for 8-10 hours. If a skin break or skin exposure should occur during embalming - irrigate the area with 1N NaOH solution for 3-5 minutes, then wash thoroughly with a disinfecting soap. Utilize reasonable precautions during dressing, cosmetizing and casketing (such as gowns, masks, goggles and gloves) to avoid any contact with residual body fluids. At this point the body should be safe for viewing. Minimize actual contact with the body during viewing to insure a high degree of safety. There are, of course, no guarantees with any disinfection procedure, but this is as close as any procedure can come to a relatively high degree of safety when embalming these difficult cases.

CONCLUSION: Creutzfeldt-Jakob disease is a bizarre disease that has been fueled by misunderstanding, rumor, fear and uncertainty. There is a definite danger involved in the handling of these cases. However, the solution as always is knowledge coupled with understanding of safety procedures. Creutzfeldt-Jakob disease requires a much higher degree of care and precaution which is best called "extreme precaution". After this level of safety has been attained, then, Creutzfeldt-Jakob disease is a manageable embalming problem. Hopefully, the next time you are called upon to embalm a Creutzfeldt-Jakob case you will have understanding, skill, equipment and procedures that allow the operation to be done as safely and efficiently as possible with the minimum possible risk to you and your fellow embalmers.

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