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Effectiveness of a Manual Disinfection Procedure in Eliminating HCV From Experimentally Contaminated Endoscopes

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Transmission of hepatitis C virus (HCV) through endoscopy has been reported, but the implications as a public health concern remain controversial. Some hospital hygienists believe that extraordinary means of cleaning and disinfection must be used on instruments of endoscopy after they are exposed to patients with HCV infection. Others believe that current cleaning and disinfection procedures are conservative enough and do not have be modified to eliminate the risk of HCV transmission. Chanzy and coinvestigators from France conducted a study that investigated the degree to which a thorough manual cleaning-washing-disinfection procedure can decontaminate all channels of a flexible submersible endoscope experimentally contaminated with HCV. To assess the accuracy of the method currently in use, the initial investigation focused on sampling effectiveness. Nine endoscopes were contaminated with high-titer HCV-positive plasma and flushed with 150 mL of sampling solution (distilled water) before disinfection. To assess the effectiveness of the disinfection procedure, the following sequence was performed on another 10 endoscopes: inoculation, disinfection, and sampling. After concentration, residual viruses were detected by means of RNA amplification with commercial assays.

The study showed that sampling alone can reduce viral titer to one-fourth its original value. Within the limits of this method, HCV RNA was never detected by means of polymerase chain reaction after disinfection, whereas all internal amplification controls were positive. This reduction to less than 1/100,000 of original titer exceeds the criterion expected for the virucidal activity of disinfectants.

The authors conclude that the results of this in vitro experiment provided evidence that patient-to-patient endoscopic transmission of HCV can be reduced, if not eliminated, with the current mechanical cleaning-washing-disinfection procedure.

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