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VTC Follow-up of Patients with Hepatitis C

Hepatitis C is a significant cause of chronic liver disease in the United States and the U.S. Army. Nearly 2% of all military personnel and their dependents test positive for hepatitis C (HCV). Some 80% of these patients can be expected to develop chronic liver disease; 30% of this group will progress further to cirrhosis and hepatocellular carcinoma. The Walter Reed Hepatology clinic treats those patients presenting from the North Atlantic Regional Medical Command (NARMC).

The antiviral medications used to treat hepatitis C often cause significant side effects, one of many reasons why the patients taking these medications require close monitoring. The scheduled course of follow up for most of the treatment protocols currently consists of monthly patient visits to the Hepatology clinic for one year. Such visits incur costs for travel and lodging, as well as lost productivity to military units. We propose that these follow-up evaluations could be accomplished using low-cost desktop video teleconferencing (VTC) equipment efficiently without compromising patient care.

The initial phase of this study will attempt to validate the use of an inexpensive desktop VTC system to conduct visual exams on patients with hepatitis C, and to manage patient compliance with HCV anti-viral medication schedules. Patients with HCV will be evaluated using both in-person face-to-face exams, and VTC-based exams. 112 adult patients currently receiving HCV anti-viral treatment will be evaluated. This study uses a crossover design in which subjects serve as their own controls. Patients will be randomized to one of four exam/rater sequences. The initial physician evaluation is either the in-person or the VTC-based patient evaluation. Immediately following the initial evaluation, a second physician will evaluate the patient by VTC or in-person using the alternate method. Inter-rater agreement on visual exam findings and case management decisions between in-person patient evaluations versus those performed using the VTC system will be compared. An estimate of cost savings (both temporal and monetary) using VTC conferencing will also be performed. The desktop VTC system will be connected at 384 kbps utilizing the local area network (LAN) connected to an ISDN portal. Follow-on phases of the study will deploy the validated technology to regional sites within the NARMC.

The use of VTC to visually diagnose patients has been studied in the field of teledermatology. The results show high patient satisfaction but varied diagnostic agreement depending on the equipment and connectivity speeds. Given that the visual resolution requirements are expected to be lower for diagnosis and treatment of HCV patients compared to Dermatology patients, we feel that inexpensive VTC using 384 kbps connectivity may be a feasible and efficient alternative to both expensive "high end" conference VTC systems and faster connectivity speeds and traditional in-person examination.

A validation study using this technology in managing patients on HCV anti-viral therapy is necessary prior to application of this technology in the field. If this technology can be validated, it could impact the therapeutic options for patients with chronic hepatitis who live at distant sites, contribute to troop readiness, and preclude significant travel related expenses.

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Funded by
USAMRMC/Telemedicine and
Advanced Technology
Research Center