September • 2002

Medical Writers' Circle

a series of articles written by medical professionals about the management and treatment of Hepatitis C

Hepatitis C and Telemedicine Technology: Closing the Gap in Access to Care

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Aggressive new pharmacological treatments are impacting the management of Hepatitis C (HCV). With these new treatments, and our ability to use them, eradication of HCV is now possible in the majority of patients.

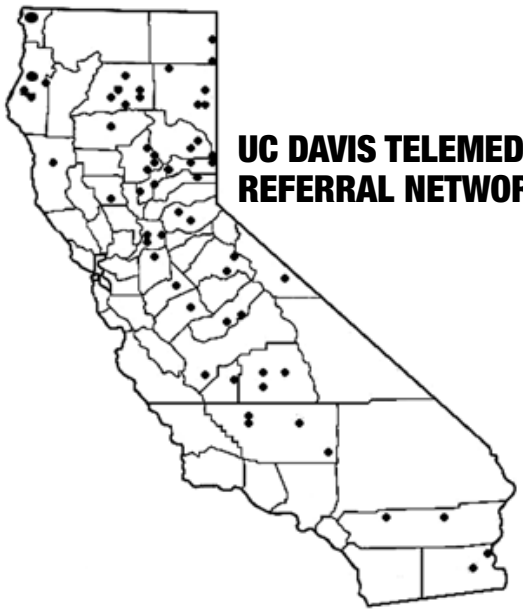
Long acting (PEGylated) interferons combined with ribavirin are often successful in the cure of HCV patients, even with genotype 1, the most common HCV virus in the United States (U.S.) population. Less than 5 years ago the expected cure rate for HCV genotype 1 was around 5-10%, with only one therapeutic option of three times per week interferon injections. Today, the cure rate is greater than 50% with once a week dosing in combination with daily oral ribavirin (See Figure 2, The Evolution of Treatment of Hepatitis C) (1).

With the advent of new medications, it is likely that in a few years we will achieve even greater successes with fewer medication side effects and improved outcomes. The search for a vaccination is progressing, and with more federal funding we will hopefully be able to add a vaccination for HCV to the ones already available for Hepatitis A and B.

One of the challenges in providing treatment to increasing numbers of HCV patients is access to care. With 4 million Americans infected with HCV, the estimate of how many would benefit from treatment is still a subject of controversy. Approximately 10%, or 400,000 HCV patients in the U.S. will progress to serious liver disease, including the development of cirrhosis, cancer, or the need for a liver transplant during their lifetime. The incidence of liver cancer is projected to triple in the next 20-30 years, and even with the availability of people willing to donate part of their liver, transplantation is a limited and very costly option. The obvious goals are prevention of new infections and elimination of the disease when already present.

Currently the management and treatment of HCV is performed by gastroenterologists, hepatologists, and specialists in infectious diseases, although internal medicine, family practice, county clinics, and centers managed by family nurse practitioners and physician assistants are growing rapidly. There are several reasons for these changes including: (a) lack of available specialists; (b) treatment administration and monitoring can be provided by health care professionals who are

Figure 1



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knowledgeable in HCV medication side effects and management; (c) structured "centers" with properly trained personnel may actually be more cost-effective and possibly safer; (d) underserved areas may not have equivalent access to health care as those residing near major medical centers or academic institutions.

Recent state and federal efforts to manage HCV have been targeted at long-term correctional facilities where HCV infection is astonishingly common. The costs associated with moving inmates to medical centers for specialist consultation and treatment are enormous, and cheaper and safer alternatives are in demand. Whether the reasons are distance or safety, these selected groups are at risk for not receiving the standard of care for treatment of chronic diseases such as HCV.

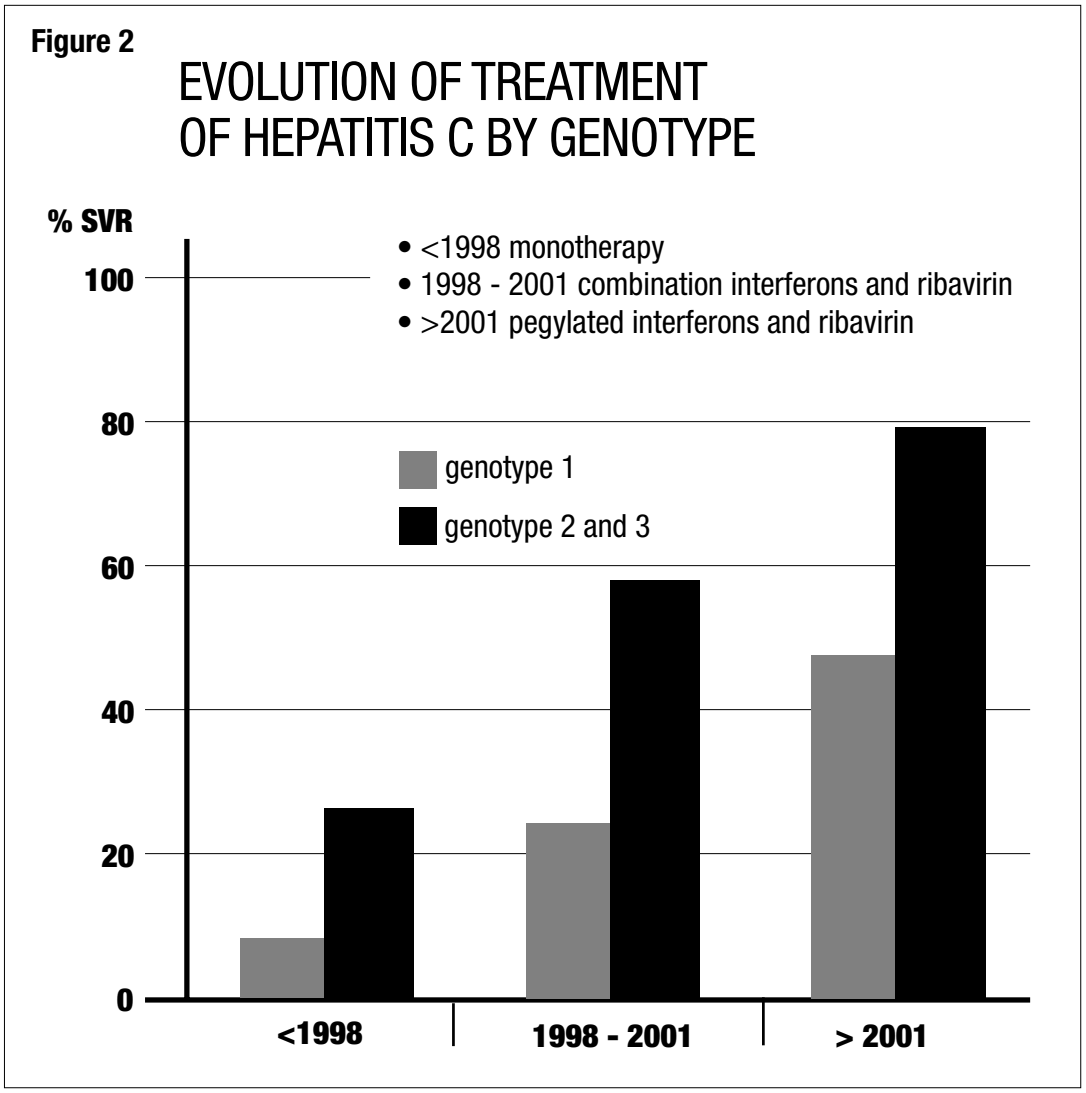
Rural areas often have limited access to care while experiencing the greatest need for a specialist to manage and treat HCV patients. Recently, Telemedicine consultations using videoconferencing technology have become more widely available to health care recipients. The use of Telemedicine allows increased access to medical services at urban or rural area hospitals, ambulatory care settings and correctional facilities. It improves the local quality of care, is highly rated by patients and physicians, and allows specialist consultation in their home communities or institutions. (2) Telemedicine saves money and time spent traveling to large urban areas or major medical centers and encourages the participation of the primary care provider in the direct care of the patient. Very often the benefit of the consultation extends far beyond the individual patient. Through participation in videoconferencing, the primary care provider can collaborate with and learn from the specialists about the current management of specialized diseases. In addition, Medicare/ Medi Cal and many other insurance carriers reimburse for these services.

The University of California (UC) Davis' Telemedicine program in Sacramento (3) is ranked among the top 10 in the country. Since 1996 UC Davis has expanded its referral network throughout all of California and provided thousands of teleconferences. (Figure 1)

Over the last 2 years, I have had the opportunity to work with the UC Davis Telemedicine Program and I recently reviewed data from the last 103 consultations involving Hepatitis C management via videoconference. Distant education was also provided to the individual primary care providers through collaboration during the consult, and by separate videoconferences featuring simultaneous multi-site groups of providers or patients in the form of lectures and accompanying question and answer sessions. Questionnaires were distributed to both patients and providers to assess satisfaction and efficacy of the services provided. The results were very positive for several aspects being explored.

Requirements for hepatology consultation include the submission of preliminary laboratory tests, including a comprehensive chemistry panel (liver and kidney functions), a complete blood count, coagulation parameters, thyroid function, and the confirmation of HCV with viral load and genotyping. If available, but not necessary for the first consultation, ultrasound reports or other abdominal imaging procedures and liver biopsy reports are also collected. For liver

Figure 2



transplantation evaluation, additional information is required about the availability of a phone, transportation, and abstinence from alcohol or illicit substances (the use of methadone in our center is not a contraindication for liver transplantation). Patient consent is obtained after an explanation of the more technical aspects and nature of the telemedicine consultation, as opposed to the traditional face-to-face consultation. A Telemedicine Coordinator at the primary care site arranges the consultation and transmits the relevant information regarding the history and physical exam data to the UC Davis Telemedicine Program, where the specialist has the chance to review the information prior to the visit. Primary care providers are invited to participate in the consultation and actually perform the physical exam as requested by the specialist. Occasionally "patient exam" cameras are used by the practitioner to magnify the details of skin changes (important signs of chronic liver diseases, such as "spider angiomatas," or "palmar erythema").

Typically the consultation is expedited by having the relevant medical information available prior to the videoconference. Telemedicine Clinical Referral Guidelines have been developed and used to ensure all necessary clinical information is received and reviewed prior to the consult. Initially there was reluctance from primary care providers to directly manage the treatment of HCV due to the risks recognized with medication treatment. We currently treat several patients including those with liver cirrhosis via telemedicine, with the goal of viral eradication or to avoid/delay liver transplantation. Very high patient and provider satisfaction has been indicated with these consultations.

In my opinion, our role as specialists in liver disease obligates us to provide care to all our patients, including those who may be financially or geographically disadvantaged. It is also important to educate the general health care providers on how to make correct diagnosis, stage the severity of liver disease (by interpreting liver biopsy reports), decide if therapy is indicated, and appropriately manage the course of treatment.

Telemedicine outreach to rural areas and to correctional facilities is developing as an effective and innovative modality for closing the disparity gap in the access to care. It raises the standards of care in underserved areas by eliminating the distance barrier for many specialized forms of medical care. The HCV community should approach this modality of care with an open mind and evaluate the potential advantages and long-term benefits of linking the local primary care provider to specialty care.

Using this model of care, distance from where the patient resides must be considered in accepting a telemedicine referral. There are cases in which the specialist will require an in person follow-up appointment. Generally patients seen over video at UC Davis live in the greater Northern California region (north of Fresno, California). Patients interested in using telemedicine should ask their primary care provider if it is available in their area. As Figure 1 shows there are over 60 telemedicine locations in California, which provide patients in their areas access to specialty care not available locally.

As part of our commitment to closing the gap in Hepatitis C management, primary care providers can access the CME videoconference on "Hepatitis C Update for the Primary Care Physician" and "Hepatitis C Update 2002" on the Internet. This has been recorded in collaboration with the U.C. Davis CME office, the Center of Health and Technology, and Katy Suggett, RN, Clinical Nurse Specialist in management of Hepatitis C at:

http://cme.ucdavis.edu/DistEd/WebEvents/Events.htm

Acknowledgements

I would like to thank Tom Nesbitt, MD, Lorraine Pellegrino, RN, Stacey Coles, from the UC Davis Telemedicine Program, Katy Suggett, RN, Peggy Janzen, and Yulia Suprun from UC Davis Transplant Medicine and Genell Csik from the office of Continuing Medical Education at UC Davis for providing the data and their editorial comments.

References

1. ***National Institutes of Health.*** 2nd **Consensus Development Conference on Management of Hepatitis C. Bethesda, Maryland, June 10-13, 2002.**

2. **Strode SW, Gustke S, Allen A. Technical and Clinical Progress in Telemedicine.** ***Journal of the American Medical Association*** **1999; 281:1066-68.**

3. **Nesbitt TS, Hilty DM, Kuenneth CA, and Siefkin, A. Development of a Telemedicine Program: A Review of 1,000 Videoconferencing Consultations.** ***Western Journal of Medicine*** **2000; 173: 169-174.**