Confirmed Transmission of Hepatitis C in an Oral Surgery Office

In the fall of 2013, the first documented report in the United States of a patient-to-patient transmission of the hepatitis C virus (HCV) associated with a dental office was issued by the Centers for Disease Control and Prevention (CDC). Using sophisticated genetic testing, it positively linked the transmission of HCV between 2 patients treated at the office of a Tulsa Oklahoma oral surgeon. Dr. Christy Bradley, an epidemiologist with the Oklahoma Department of Health, indicated that while it may be impossible to trace exactly how the virus was spread within the office, she speculated that it could have been the result of contaminated surgical instruments or the reuse of disposable needles among other possibilities. Of the 4202 patients tested at state health facilities, 89 were found positive for HCV, 5 for hepatitis B, and 4 for human immunodeficiency virus (HIV). However, so far there has not yet been any evidence to link these additional infections with that office, as their incidences are close to the expected ranges in the general population. Further genetic testing was to continue. Although there is a possibility that other diseases could have been transmitted at that office, the CDC has so far not tested for diseases other than those indicated above.

Once infected with HCV, about 80% of patients remain chronically infected for the rest of their lives and are at risk for spreading the disease to others as well as for developing chronic liver disease such as liver cancer and cirrhosis. It can, however, be years before symptoms develop. The CDC therefore encourages those at high risk for HCV to be tested not only to help prevent spread of the disease, but also because there are new drugs on the market that have been shown to be highly effective in treating the disease. The people with the highest risk include those who have received clotting factor concentrates made before 1987, blood transfusions, or solid organ transplants before July 1992. Also at high risk are injection drug abusers, even those who have injected only once or at any time in the past; those who are on chronic hemodialysis; those who have had known exposure to HCV or HIV; and those who were born to mothers who were HCV positive.¹

Of course, prevention is the best way to control the spread of HCV since unfortunately no vaccine has yet been developed to prevent HCV infection. In the dental office, proper sterilization of instruments is paramount, along with washing of hands with soap and water if they are grossly contaminated, the use of alcohol-based hand

rubs before and after touching each patient, and of course the use of gloves, especially when working in the mouth or starting intravenous infusions. Meticulous sterile technique must be enforced regarding parenteral drug administration. Disposable needles or intravenous cannulas or partially empty fluid bags and tubing must never be reused. Once a needle or syringe comes in contact with any part of the sterile intravenous tubing that is connected to the patient, it must be considered as having been in direct contact with the patient's blood and must be thrown away after the procedure. Sterile intravenous tubing is no longer considered sterile once it is connected in any way to the patient. These "contaminated" needles and syringes must never reenter a sterile drug vial to withdraw a second dose for that patient if that drug vial is not subsequently immediately discarded. Otherwise, using the same needle/syringe to withdraw a second dose for the patient contaminates the vial and risks spreading HCV, HIV, or some other disease to a subsequent patient receiving medication from that same contaminated vial. Obviously, an intravenous infusion set is a single-use item and no part can be reused. Replacing only the extension set that is attached to the hub of a new intravenous cannula and connecting it to the same partially-used saline bag and tubing is definitely below the standard of care and would be a huge red flag for the CDC.

Needle stick injury is a major risk factor for dentists. There is solid evidence that double gloving helps prevent many injuries and also prevents contamination of the hands when the outer glove develops a small hole that often develops with longer cases. Although dentists are not listed as high-risk, your editor believes that because we are constantly at risk for needle stick injuries and have significant exposure to blood, dentists should consider being screened for HCV. This now makes sense because one can start treatment before symptoms appear and before the disease advances, but that can only happen after the screening reveals the infection.

Revolutionary drugs are now available and more are being tested that have the potential to cure HCV infection in many patients. With chronic HCV infection affecting more than 3 million people in the United States, with approximately 17,000 new cases being discovered each year, there is an urgent need for detection and subsequent delivery of treatment.^{1,2} The standard treatment has typically involved a combination therapy with interferons and ribavirin. Success rates have recently increased with the addition of protease and polymerase inhibitors to standard combination therapy

of pegylated interferon/ribavirin. These breakthrough treatments, which have the potential to dramatically affect the incidence of HCV infection, include simeprevir (Olysio), a protease inhibitor, and sofosbuvir (Sovaldi) a polymerase inhibitor. Both drugs received approval by the US Food and Drug Administration toward the end of 2013.

Having practiced anesthesia for years without gloves before the standard of care advanced, I have now witnessed two “game-changing” events that have forever changed how dental practices should be run. The first involved a dentist, David Acer, who in the late 1980s somehow infected 6 patients with HIV in his practice. However, only local anesthesia was used in those cases. That served as a wake-up call for dentistry, and the use of gloves in dentistry markedly increased after that event. The second major event is the one reported here. Although the use of rusty dental instruments could have been the cause of the HCV transmission, your editor believes that substandard management of needles and syringes associated with intravenous medications was more likely the culprit. That is why your editor believes that only licensed healthcare professionals should handle intravenous medications. There is great risk associated with just one mistake when it involves the preparation and administration of intravenous drugs. Not only did significant harm occur to an innocent, unsuspecting patient, but the oral surgeon’s reputation and license to practice oral surgery were also placed at great risk. We

all need to take another look at how we practice and perhaps imagine that a representative from the CDC is observing our every move. We all want to be proud of our modern practices, as infection control practices have markedly improved since the 1980s. Hopefully, none of us would be satisfied practicing today in the same manner as it was done back then. If we are certain that we have no holes in our safety practices, there should be no reason for us to fear a visit from the CDC or worry whether our office will be the next one in the headlines. In the 1960s, General Electric’s slogan was “Progress is our most important product.” In the 21st century, dentistry’s slogan should be, “Your safety is our most important goal.”

Joel M. Weaver, DDS, PhD
Editor-in-Chief

REFERENCES

1. Centers for Disease Control and Prevention. Hepatitis C information for health professionals. Available at: <http://www.cdc.gov/hepatitis/HCV/HCVfaq.htm>. Accessed May 28, 2014.
2. Department of Health & Human Services. Centers for Disease Control and Prevention. Hepatitis C general information. Available at: <http://www.cdc.gov/hepatitis/HCV/PDFs/HepCGeneralFactSheet.pdf>. Accessed May 28, 2014.