THE SURGEON WITH HBV, HCV, OR HIV

OBJECTIVES:

• To identify the ethical issues present when a surgeon is infected with a blood-borne pathogen

• To estimate the risk of transmission from surgeon to patient of HBV, HCV, and HIV

• To understand the steps that can be taken to reduce the risk of transmission when surgeon infection is present

Slides 3-4: Case 1

Dr. Gray is an orthopaedic surgeon in apparently good health who has been in practice for 5 years. He donates blood during a blood drive at his church. Dr. Gray is contacted the next week and told that he has tested positive for the Hepatitis C virus. He is advised to seek care from his primary care physician. Dr. Gray has no history of IV drug use, no tattoos, nor any other outside risk factors. He is not aware of any previous needle stick injury.

Dr. Gray sees his primary care physician who repeats the Hepatitis C test and confirms the positive diagnosis. His viral load is 40,000 GE/ml, considered high. His liver enzymes are normal. His primary care physician recommends that he begin drug treatment. Dr. Gray has a total knee and a total hip on the OR schedule for the next morning.

Slide 5: Questions

• Should Dr. Gray operate?
• Does Dr. Gray have an ethical or professional responsibility to disclosure his condition to the hospital?
• Does Dr. Gray have an ethical or professional responsibility to disclosure his condition to the patient?
• What should Dr. Gray do to protect his patients?
The prevalence of active infection with the hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) among orthopaedic surgeons is unknown but is probably at least as high as in the general population. For the surgeon infected with a blood-borne pathogen, there is a small risk of transmission of the virus to a patient during a surgical procedure. This creates an ethical dilemma for the infected surgeon: the principle of beneficence requires the surgeon to take action that is beneficial to his patient, and the principle of non-maleficence requires the surgeon to avoid harming his patient. Can the surgeon with a blood-borne pathogen continue to operate?

The risk of transmission of blood-borne pathogens from an infected patient to the surgeon is well known. The hepatitis B virus is most easily transmitted, particularly when the hepatitis B e antigen is present. Hepatitis C virus is several times less transmissible, and the human immunodeficiency virus is about 100 times less transmissible. The use of universal precautions and the widespread adoption of vaccination against the hepatitis B virus by both surgeons and the general public have reduced the rate of hepatitis B infection among surgeons.

Hepatitis C infection is now the most common blood-borne infection in the United States. For both HBV and HIV, the risk of transmission is related to the concentration of viral particles present in blood. Treatments are available which reduce the viral load for both HCV and HBV.

The risk of transmission of a blood-borne pathogen from surgeon to patient is small, but there are documented instances of its occurrence. Even with the hepatitis B vaccine being widely available, there have still been instances of transmission of HBV from surgeon to patient, including two patients infected by an orthopaedic surgeon.¹ Although HCV is less transmissible than HBV, there is no vaccine available against HCV, and there have been several cases of transmission from surgeon to patient. In Germany, one of 229 patients operated on by an orthopaedic surgeon with HCV were found to be infected with the same strain.² In the U.S., a cardiothoracic surgeon transmitted HCV to 14 of 937 patients over 10 years.³ There are at least four documented instances of HIV being transmitted from health care provider to patients, one by an orthopaedic surgeon in France.⁴ The infected surgeon must consider the possibility of transmitting the infection to the patient during surgery.
Slides 6: Case continued

Dr. Gray cancels his cases and informs his partners that he will need to take leave from his practice for an undetermined period of time. He discusses his case with the medical director of his hospital who agrees to convene an expert review panel to discuss his case and make recommendations regarding his return to practice.

Slide 7: Questions

- Has Dr. Gray fulfilled his professional and ethical obligations?
- Is there any other action that Dr. Gray or the hospital should have taken to prevent transmission and safeguard patients?

Guidance for the surgeon with a blood-borne pathogen has been given by the CDC and by the Society for Healthcare Epidemiology of America. The CDC issued guidelines for health care practitioners infected with HIV and HBV in 1991. These guidelines identified “exposure-prone” procedures and recommended that surgeons infected with HIV or HBV not perform these procedures unless approved by a panel of experts convened to assess the individual’s risk for virus transmission. The surgeon performing an exposure-prone procedure would be required to inform the patient of his infection status. More recent guidelines for HBV issued by the CDC in 2012 recognize that surgeons with HBV may have either a low or a high risk of transmitting the disease, depending on the viral load. This information should be taken into account by the expert panels convened to provide guidance for surgeons seeking to return to surgical practice. The surgeon who is allowed to return to practice is not required to inform patients of his infection status. These guidelines attempt to balance the rights of the patient to be protected from harm and the rights of the surgeon or trainee with a physical impairment or disability to continue to work. The Society for Healthcare Epidemiology of America has provided guidelines specific to HBV, HCV, and HIV, indicating the viral load that should be achieved prior to performing healthcare-associated procedures with varying risks of virus transmission.

Slide 8: Case continued

After 12 weeks of treatment Dr. Gray is found to have a low viral load and returns to practice without any restrictions. He does not notify any of his previous or current patients of his HCV status.
Slide 9: Questions

- Are there any additional actions that either Dr. Gray or the hospital should take?
- Is this now “case closed?”

Routine testing for HBV status us required of healthcare practitioners in most work settings. There is a push for more widespread testing for HCV and HIV testing among both the general public and healthcare practitioners. The orthopaedic surgeon should consider testing for blood-borne pathogens and should also be aware of the consequences of a positive test. A physician who has received treatment for a blood-borne pathogen may be required to maintain contact with a review board to verify that his risk of transmitting a viral infection remains low.

Slide 10-11: Case 2

A 27 year-old man with HIV/AIDS and Hepatitis C continues to use IV drugs. He presents to the ER with a forearm abscess, and you are asked to see him.

The abscess is deep and extensive and will require debridement in the operating room. The patient has been non-compliant with his medication for HIV and Hepatitis C. Some bleeding is anticipated, and you are concerned that you may be exposed to a blood-borne pathogen.

Slide 12: Question

Are you required to care for this patient even though it places you at risk of infection?

Yes. Surgeons are required to care for patients who have active infection with HIV, Hepatitis B, or Hepatitis C despite the risk that it presents to the surgeon. This is consistent with the physician's duty of beneficence to patients. A surgeon operating on a patient with a blood-borne pathogen should take all recommended precautions, including double gloving. Should exposure occur, the surgeon should seek the advice of an infectious disease specialist regarding treatment. If a surgeon develops active infection with a blood-borne pathogen, he should notify the medical director of his hospital and begin treatment. It is usually possible for a physician to return to practice once the infection has been adequately treated.
Slides 13-16: Background, Transmission, and Questions

Background
- The prevalence of HBV, HCV, and HIV infection among orthopaedic surgeons is unknown but is probably at least as high as in the general population.
- There is a small risk of transmission of the virus to a patient during a surgical procedure.

Transmissibility
- HBV greatest
  - 6% – 37% from needlestick
- HCV intermediate
  - 1% - 2% from needlestick
- HIV low
  - 0.3% from needlestick

“Risk of Transmission” Categories

Orthopaedics
1: Minor surface suturing: Minimal risk
2: Minor local procedures, arthroscopy, percutaneous procedures: transmission unlikely but possible
3: Most open orthopaedic procedures, including joint arthroplasty and spine surgery, would be considered “Exposure-prone Procedures”

- In general, is it ever permissible for the infected surgeon to operate?
- Do you know of any sources that provide guidance on this topic?

As noted following slide 7, surgeons are at risk of acquiring infection with HBV, HCV, or HIV during surgical procedures. The surgeon who becomes infected with one of these pathogens may also transmit the virus to a patient during a surgical procedure. Transmissibility is highest for HBV, intermediate for HCV, and lowest for HIV; however, there are documented cases of physician-to-patient transmission during orthopaedic surgery for all three viruses. The likelihood of transmission is greatest during “exposure-prone procedures.”

Guidelines for management of the surgeon infected with a blood-borne pathogen have changed over the years. While earlier guidelines required physicians to refrain from surgery and to inform patients of their status, newer guidelines may allow physicians to return to practice once they have satisfactorily completed treatment and a low viral load had been documented. Decisions about a surgeon’s return to practice are made by a locally-convened expert panel, based on communication with the patient’s
physician. It may not be necessary for a surgeon to tell patients that he has had an infection with a blood-borne pathogen.

**Slides 17-25: Guidelines, Questions, and Summary**

**CDC and SHEA Guidelines**

- **CDC Guidelines**
  - 1991 Guidelines for HIV and HBV
  - 2012 Guidelines for HBV
- **SHEA Guidelines 2010**
  - Society of Healthcare Epidemiologists of America
  - Incorporates modern methods of testing viral load
  - Balances protection of the public with the rights of “impaired” practitioners

**CDC HIV, HBV, Guidelines Circa 1991**

- Issued in response to 6 cases of HIV transmitted by unknown means from Florida dentist
- Classified some procedures as “exposure-prone”
  - Procedures having a greater likelihood of provider-to-patient transmission of a blood-borne pathogen.
  - Procedure previously implicated in transmission.
- Required that a practitioner inform patients of infection status
- “Expert Review Panel” to oversee each case

**CDC HBV Guidelines 2012**

- “HBV infection alone should not disqualify infected persons from the practice or study of surgery”
- “...no prenotification of patients of a health-care provider's or student’s HBV status”
- “...use of HBV DNA serum levels rather than hepatitis B e-antigen status to monitor infectivity.”
- “...specific suggestions for composition of expert review panels and threshold value of serum HBV DNA considered "safe" for practice (<1,000 IU/ml).”
- “...explicitly address the issue of medical and dental students who are discovered to have chronic HBV infection.”
- For most chronically HBV-infected providers and students who conform to current standards for infection control, HBV infection status alone does not require any curtailing of their practices or supervised learning experiences.”
SHEA Guidelines

- Separate guidelines for HCV, HBV, HIV
- Based on viral load and type of procedure
  - More restrictive for “exposure-prone procedures”

Widespread Testing
The CDC has advocated testing for HCV for all persons born between 1945 and 1965, and testing for HIV for all persons under the age of 65.

- Should the asymptomatic orthopaedic surgeon with no risk factors be tested?
- Based on what you have learned in this module, what should an orthopaedic surgeon do if the test is positive?

Although the ethical basis of this issue is unchanging (the physician’s duty of non-maleficence), the requirements for the physician may change based on developments in medical care and legislation. For example, physicians are generally required by hospitals to undergo testing for the Hepatitis B virus; in the future this requirement may be extended to Hepatitis C. Recently drugs have become available for the treatment of Hepatitis C that are highly effective with a shorter duration of treatment. Surgeons should consider being tested voluntarily for HCV but should understand the consequences of a positive test.

Summary
According to published guidelines, the orthopaedic surgeon infected with a blood-borne pathogen has an ethical duty to curtail his practice until treatment has reduced the risk of transmission to patients to an acceptable level.

References
http://www.aaos.org/about/papers/advistmt/1018.asp

Morbidity and Mortality Weekly Report (MMWR) Updated CDC Recommendations for the Management of Hepatitis B Virus–Infected Health-Care Providers and Students. July 6, 2012 / 61(RR03);1-12

