

Case Study: Future Care Cost Analysis for a Post-Splenectomy Patient

Tracy Albee, BSN, RN, LNCC, CLCP

Abstract. *Individuals with splenectomy may be at risk for long-term healthcare costs. This case study describes one situation in which a life care planner was asked to complete a “future care cost analysis,” for an individual with splenectomy due to trauma. The individual’s current status was compared with research to identify future risks and needs. Findings, based upon application of life care planning principles, demonstrate certain needs, with risks diminished by patient education and prompt medical attention.*

Case Study

“Galen (130-200 AD) described the spleen as the ‘organ of mystery.’ It was not until the 18th century that the spleen’s relationship to the immune and hematological systems was appreciated. The spleen is the largest lymphoid tissue in the body and its functions are well understood in terms of its unique structure. Composed of several different tissue types, the spleen is at the crossroads between the arterial supply and venous return. The spleen acts as clearing house, where elements of circulatory, reticuloendothelial, and immune systems interact. It is ideally suited to play a critical role in the surveillance of circulating blood” (Sumaraju, Smith, & Smith, 2001, p. 551).

Often when asked to do a life care plan, the person with the injury may have had multiple injuries which need to be taken into consideration. Internal injuries often include lacerations and damage to the liver, kidneys, lungs, and colon. In the author’s nursing experience, it is rare to find such injuries without additional involvement to the spleen.

Case Situation: The life care planner was asked by a defense attorney to provide a future care cost analysis for an individual following splenectomy; no other significant internal or orthopedic injuries existed. A physician had been hired by the plaintiff’s counsel and provided an opinion letter, which laid out multiple medical complications expected post-splenectomy. This physician stated “it is possible to live without a spleen but it isn’t easy.” The physician stated in the opinion letter that “overwhelming infection in a patient without a spleen carries a mortality rate as high as 50% during illness.” Further, he stated “90% of this population dies, usually from *streptococcus pneumoniae*.” His opinion was that the plaintiff was at risk for blood clotting disorders, cancer, and high risk of early death. The doctor did not cite references for his opinions and when testifying at deposition, could not quote sources for the opinions.

The case involved a Jet Ski accident between two adult males. The liability in the accident clearly fell to the defendant. The injured individual was transported to a medical facility and found to have a Grade V splenic laceration (defined as a shattered spleen; hilar vascular injury

which devascularizes the spleen) and a Grade II left renal injury (defined as a non-expanding, confined perirenal hematoma or cortical laceration less than 1 cm deep without urinary extravasation/leakage). There were also two rib fractures diagnosed upon x-ray. An emergency splenectomy was performed and the individual was discharged from the hospital without complications. Records indicated one month later a follow-up clinic visit was completed and the individual was doing well and was released to return to work.

The following records were reviewed by the life care planner:

1. Trauma History and Physical report
2. Operative reports
3. Trauma Clinic notes (follow-up)
4. Deposition of the injured individual
5. Opinion letter of the physician expert

It appeared from records reviewed and testimony that there were no residual medical issues two years following the accident. The individual did report having experienced episodes of cold/flu which kept him from working on occasion; however, testimony indicated that these were not “infections” and it did not appear that he required physician visits or antibiotic treatment for these incidences of illness.

There was no indication from documents reviewed that the individual had any additional medical conditions that would cause immunocompromise (i.e., rheumatoid arthritis, history of cancer, need for steroids).

Research was completed regarding post-splenectomy infections in order to determine the future medical needs of the individual.

According to Brigden & Pattullo (1999), overwhelming postsplenectomy infection (OPSI) should be largely preventable if appropriate precautions are taken. When informed patients seek medical attention promptly, the mortality rate may be reduced to the range of 10%. The precise incidence of OPSI remains controversial and published estimates vary considerably. In one retrospective review of 5,902 post-splenectomy patients studied between 1952 and 1987, the incidence of OPSI was 0.9% in adults. Most of the published data predates the widespread availability of the pneumococcal and Haemophilus (H.) influenza vaccines such that current rates may be lower. Additionally, an individual’s overall immune status is an important variable.

Based on the author’s research, the following guidelines are useful for post-splenectomy patients:

1. Educating post-splenectomy patients that they should wear a MediAlert bracelet or necklace and carry a wallet card, identifying their post-splenectomy status.
2. Advising patients to seek prompt medical attention if not well.
3. Encouraging patients to alert all new healthcare professionals, including dentists, regarding their splenic status.
4. Labeling individual patient records prominently that the patient has had a splenectomy.
5. Educating patients regarding Pneumococcal and H. influenza vaccines.

Hoffman (2000) reports that two late complications of splenectomy give the greatest concern: overwhelming postsplenectomy septicemia and atherosclerotic heart disease. Postsplenectomy septicemia is rare and patients at the lowest risk are those in whom splenectomy

cures the underlying problem, such as in trauma. The single most important measure to prevent postsplenectomy septicemia is education of patient, family, and physician. Recognition of the risk, the institution of appropriate preventative measures, and the rapid administration of antibiotics to a patient who is showing signs of infection can be lifesaving. Atherosclerosis, developing many years after splenectomy, may be related to the thrombocytosis that occurs, with enhancement of plaque formation. Statistically, the increased risk of atherosclerosis is not great, but for individuals with other risk factors such as high levels of cholesterol or homocysteine, heterozygous protein C or S deficiency, or factor V Leiden, splenectomy may pose a more significant risk. However, no data is currently available in this area.

Additional Research

Brigden, et al. (2001) conducted a research project and found that the majority (50-70%) of serious infections occur within the first two years following splenectomy. If patients are educated to seek medical attention immediately, the mortality (of OPSI) may be reduced to about 10%. The protocol for the management of asplenic patients includes:

1. Pneumococcal vaccine every 3-5 years; influenza vaccine annually.
2. MediAlert bracelet or necklace.

Sumaraju, et al. (2001) reports that trauma accounts for 10 to 30% of asplenic patients. Postsplenectomy sepsis is defined as septicemia, meningitis, or pneumonia that is usually fulminant and occurs days to years after removal of the spleen. Prevention includes patient education, pneumococcal immunization every 5 to 10 years, and flu vaccine annually.

The Antibiotic Prophylaxis Guidelines (2002) of the American Heart Association were also reviewed and there were no specific recommendations set forth for asplenic individuals.

Research regarding dental issues makes reference to the need for asplenic patients to notify their dentists of their post-splenectomy status. This area of medical need was researched in order to determine if prophylactic antibiotics were required for asplenic patients prior to dental work being performed. Research with the American Dental Association (2002) and the American Heart Association (2002) revealed no recommendation for prophylactic antibiotics as a standard of care.

Future Medical Care

Based upon research listed in this article regarding long-term healthcare needs for an individual with splenectomy, the only need for future medical care relates to recommendations for education, vaccination, and MediAlert Bracelet or Necklace. The associated costs are as follows:

Requirement	Cost	Frequency	Annualized Cost
Education	\$0	Ongoing by primary care physician or self-obtained Internet/library research	\$0
Flu Vaccine	\$28.00	Yearly	\$28.00 per year
Pneumovaccine	\$74.00	Every 3 to 10 years Midline = 6.5 years	\$11.38 per year
MediAlert Bracelet or Necklace	\$35.00 for joining database and receiving the engraved emblem	Only required once, but assume replacement of engraved emblem 5 times over lifetime due to normal wear & tear or loss	\$210.00 total cost over lifetime

Summary

The individual in this case study did not appear to have had any ongoing infection issues since his initial injury and resulting splenectomy in year 2000. As a matter of fact, per his own testimony, he had not required any antibiotic treatment in the past two years. Therefore, it is assumed that the medical probability of any future treatment, related to the loss of his spleen, is low. Should he require the use of an antibiotic in the future, it likely would not be at a cost higher than the average person who suffers from an occasional acute bacterial infection. It was recommended that a physician be consulted by the defense attorney for the actual statistical risk if deemed necessary.

At settlement conference, the plaintiff's physician's opinion letter was reviewed along with the life care planner's research-based report. At that point, the case settled for the cost of past medical expenses and a small percentage of the standard pain and suffering amount allowed by state law.

References

American Dental Association. (January, 2002). Antibiotics before dental treatment, preventing bacterial endocarditis. *Journal of American Dental Association*, 133, 127.

American Heart Association. (2002). Antibiotic Prophylaxis Guidelines. (brochure).

- Brigden, M. L. (Feb, 2001). Detection, education and management of the asplenic or hyposplenic patient. *American Family Physician*, 63(3), 499-506, 508.
- Brigden, L., & Pattullo, A. L. (April, 1999). Prevention and management of overwhelming postsplenectomy infection - An update. *Critical Care Medicine*, 27(4), 836-842.
- Hoffman, R. (Ed.). (2000). *Hematology: Basic Principles and Practice*, 3rd edition. Orlando, FL: Churchill Livingstone, Inc.
- Sumaraju, V., Smith, L. G., & Smith, S. M. (2001). Infectious complications in asplenic hosts. *Infectious Disease Clinics of North America*, 15(2), 551-565.

About the Author

Tracy Albee has been a RN since 1987 and holds a BSN degree. She is a Legal Nurse Consultant Certified and a Certified Life Care Planner. Experienced in various areas, she has published previously and provided education programs locally and nationally regarding life care planning, home health, hospice care, elder abuse and residential care facilities.
