Project #1: Understanding and analyzing clinical notes

Team 6: Kiran S. Pradhan & Jung Eun Choi

Patient 1:

In early February, a 59-year-old man was transferred from a neighboring hospital because his family found him unresponsive with decreased mental status. His change in mental state was due to his end-stage liver disease, coupled with ulcerative colitis, a type of inflammatory bowel syndrome, ascites, which is the buildup of fluid in the abdomen, and sclerosing cholangitis, which results in scarring of the bile ducts and prevents drainage of bile, a process essential to maintaining a healthy liver. These conditions affected parts of his body beyond his abdomen as he had been admitted for hepatic encephalopathy in the past, which is a condition characterized by the decline of brain function because the liver is unable to filter out toxins and unwanted substances from the blood. This is likely the main reason for the man's acute change in mental status.

Upon admission to the Surgical Intensive Care Unit, the doctors immediately diagnosed the hepatic encephalopathy, in addition to pneumonia in his lower left lung, likely from his history of Gram-negative sepsis. To treat the encephalopathy, the man was given lactulose, which like the name sounds is sugar, albeit a synthetic one, that helps pull water into the color to soften the stool and promote bowel movements. He was also put on a regimen of Flagyl to decontaminate his abdominal area, including his duodenum where he has an existing ulcer, of harmful bacteria. This helped improve the man's mental state, but he still felt uncomfortably bloated when asked. Hopefully, the Flagyl will improve that symptom, which is likely due to a buildup of gas from the lactulose. He was also put on a 10-day course of Levaquin, an antibiotic, to treat his pneumonia.

After taking a routine exam upon admission, the man got a chest x-ray that confirmed pneumonia and was also tapped at the location of one of the ascites to confirm the absence of peritonitis, a harmful bacteria that is often caused by cirrhosis of the liver. During the tap, a whole liter of fluid was removed from his abdomen.

Upon review of his current medications, which includes a diuretic (Aldactone) to prevent fluid buildup in tissues, a beta blocker (Nadolol) to treat high blood pressure, a proton inhibitor (Protonix) to reduce the amount of acid in the stomach to prevent heartburn and ulcers, and a *multitude* of vitamins and supplements, the man was asked about his diet. He revealed that he was only consuming 400-500 calories per day, not nearly enough to sustain his health, and was given a goal of 2,000 calories per day while in the hospital. To achieve this, he had a post-pyloric tube attached twice (because the man accidentally pulled it out) to his small bowel to give him nutrition in liquid form. After he accidentally pulled out the tube again, the doctors decided with him that he could be discharged since his pneumonia and hepatic encephalopathy symptoms were now treated, but only if he continued to follow up with the Liver Center for

nutritional checkups. Since the patient lived at home alone, he stayed with his sister for the time being to focus on getting nutritional value from home food, which he prefers over the liquid version.

At the time of discharge, it was decided he would continue on prior medications, including his multivitamins and a boost of supplements.

Patient 2:

On August 30th, a 72-year-old gentleman got transferred from an hospital to the ICU with a chief complaint of sepsis, which is a potentially life-threatening condition when the body's response to chemicals that fight infection is unbalanced and triggers damaging changes to multiple organ systems. A few days before he got admitted into the ICU, his sputum sample showed that he was infected with stenotrophomonas maltophilia, an uncommon human infection that is difficult to treat, especially for people with severely weakened immune systems, because of its resistance to antibiotics. This wasn't good news for his family as he had an extensive past medical history including pancreatic cancer (which was recurring), restrictive lung disease, hypotension, diastolic dysfunction, pneumothoraces, cirrhosis, gastrointestinal bleed, chronic deep venous thrombosis, coronary artery disease, diabetes, and hypocortisolism. Over time, his respiratory status also continued to worsen, and he presented signs of hypotension. On top of that, his kidneys started losing the ability to filter waste products from his blood and balance his blood's chemical makeup (renal failure).

Prior to his admission into the ICU, he got a tracheostomy procedure because he couldn't breathe properly. After that, an anesthesiologist helped him get ventilated. He was also given 500 mg of Levaquin in hopes to treat his infection, hydrocortisone 100 mg intravenously (a treatment for low levels of corticosteroids) and 3 liters of normal saline for his blood pressure as hypotension started on a maximum dose of Neo-Synephrine.

On the day of admission, he continued experiencing persistent hypotension and exhibiting signs of worsening respiratory failure, which was the reason for being hospitalized at the previous hospital. His skin looked yellow, and he was only responsive to pain. Because the clinicians were worried about hypocortisolism, he was maintained on high-dose steroids. To treat his infection, he received Zosyn, vancomycin, and ciprofloxacin, but these antibiotics didn't work. Throughout his hospitalization, he was passing less than 100 milliliters of urine a day, showing the failure in the function of his kidneys. On the second day of hospitalization, his liver was rapidly increasing, his gastrojejunostomy tube drained greenish fecal material, and his bodily fluids were very acidic. Luckily, his breathing improved. Unfortunately, on the third day of hospitalization, he showed nonreactive pupils and evidence of progressive multiorgan failure. Once the clinicians notified his family, a decision was made to withdraw from care. In the morning, he passed away shortly after his ventilatory support and pressors were discontinued.

Sadly, he could have survived for longer if the clinicians administered the effective antibiotic before it was too late. His infection (sepsis) actually caused hypotension and

eventually renal failure—the reason he was hospitalized from the very beginning. After his passing, his blood cultures showed that imipenem was the only antibiotic nonresistant to sepsis.