

C2L8 - Ashley Hay

(0:05 - 0:57)

Hello, welcome to lesson 8. I know that there was a tonne of content in this lesson. I believe there's over 50 slides. So, definitely a lot.

I do want to point out some of the kind of more important things that you may see come up a lot, whether it's on your exam, or in your professional journey. So, I think just knowing that we identify microbes for certain reasons, right? So, you know, knowing what a microbe is, and then realising that we identify these to be able to make a medical diagnosis, sometime to determine treatment. It does require, you know, something, a tissue or a specimen to be sent to the lab, and then certain procedures and tools are needed.

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There to be able to help us make a proper diagnosis. So, knowing the difference between a culture and culture and sensitivity. So, a culture is a sample that we basically take from somewhere on the patient.

Let's just say it's urine culture. So, we send a small bit of urine, and then that sample is allowed to grow basically in, you know, some kind of a petri dish. And then it's put into, you know, a culture medium, it's placed in an oven, and then we see kind of what grows.

That's the culture. Culture and sensitivity, though. Once we grow the culture, then we determine whatever bacteria's grown, it's sensitivity to certain types of antibiotics.

So, that is how we figure out certain kinds of treatment for different, you know, microbes that we're identifying. So, and then there's also staining. Staining we see in a number of different kinds of areas here.

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But basically, it just prepares whatever specimen we have sent for somebody in the lab to be able to examine it under a microscope, and then give us different information about that. So, is the bacteria gramme-positive or gramme-negative? And then that will be able not only, you know, to tell us maybe what's growing, but then also how to treat it. So, if something is gramme-positive, we want to be able to give an antibiotic that's effective against that.

Whereas if it were gramme-negative, we would definitely have a provider prescribe and then administer something different. You know, we did, we covered kind of parts of a microscope and different kinds of microbes. I think that all of that is really great to know.

But I do think, you know, in terms of what's going to be on your exam, that that's pretty unlikely. So, you know, just make sure that you're kind of going through and familiar with

everything, but then kind of zooming in a little bit more on some of the stuff that we're talking about now. We talked about the ways that disease is transmitted.

And really important here, we want to be able to show that. So, here we see the different rings here, which explain to us how an infectious agent or a disease is transmitted. So, this can be anything from a bacteria to a virus to a fungus, what have you.

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So, we start with a reservoir, and that's basically wherever the microbe started. This can be the human body. It could be food or a water source, maybe.

And then the exit portal is the way that the organism leaves the body. So, here we see transmission. This is when, you know, the infectious agent becomes present.

It has a portal of entry, maybe through the skin. Then we have whatever, you know, host may be susceptible, perhaps your patient. And then it becomes the infectious agent in the reservoir, and then it has a portal of exit, and then continues to transmit to the next person.

And I know that we recently just talked about the between precautions, right? Like droplet versus airborne precautions versus contact. So, keep in mind, you know, those are also methods of transmission as well, right? So, we have direct contact. There's droplet transmission.

So, that's, you know, when the spread of whatever microbe is maybe in a water droplet or a respiratory droplet. Airborne transmission, you know, this can be just present and remain kind of hanging in the air. And then there's also oral transmission as well.

So, just kind of keeping those things in mind will help. And then also make sure that you are very, very familiar with different types of hospital acquired or surgical site infections. There are definitely questions on this, and it is one of our number one things that we always try to avoid and ensure that we keep our patients as safe and infection-free as possible while they're in our care.

So, you may see or hear the term HAI very frequently. That stands for hospital acquired infection. This is any kind of infection that has occurred or been acquired during a healthcare stay.

It can be as short as a quick ambulatory outpatient visit, or it can be during a lengthy hospital stay. So, one of the most common infections to be picked up as a hospital acquired infection is a urinary tract infection. A surgical site infection, also known as SSI, this can be when some kind of organism colonises and starts to grow really inside of a wound.

So, this can really, it's often due to, unfortunately, technique on the provider's behalf. So, either there was contamination, either prior to or during surgery, sterile technique was poor, or post-

surgery contamination. And then, you know, severity and treatment can vary depending on what kind of infections this patient has acquired.

It can be determined, the severity and the treatment can be determined by what type of bacteria or virus they have acquired and what sensitivity to antibiotics are present at the time, you know, what we're going to be treating them with. And then, just being aware of, you know, potential complications, treatment, and isolation requirements for any kind of hospital acquired or surgical site infection, also really important. So, an example of treatment approaches might be something like we just talked about, kind of sending a specimen for culture, observing the patient and the site, and then also providing some kind of targeted antibiotic therapy, you know, whatever is appropriate for what we've determined.

So, yeah, just, you know, being aware that HAIs, unfortunately, they do exist, they do frequently occur. And then, knowing our role as providers in disease prevention, hand washing, always your number one method of prevention is hand washing. And even for yourselves, during cold and flu season, you know, as the winter approaches, just increasing the frequency that you are washing your hands, it will always really just, you know, be your first line of defence, even for yourself getting sick.

Practising standard precautions, like we recently mentioned in a prior lesson, along with aseptic technique. And then, you know, just proper use of antiseptics, disinfectants on different surfaces, making sure that we're sanitising and using clean instruments or supplies. Definitely being aware of different terms that relate to asepsis.

So, for example, do you know the difference between aseptic and bactericidal? Do you know what bacteriostatic is? What's the difference between contamination and cross-contamination? So, if any of those questions are lingering for you, make sure that you're looking up those terms. Knowing the difference between a, you know, nosocomial infection versus a pathogen, all of these little kind of definitions you will see come up over and over. So, all of those asepsis-related terms are really important.

Knowing different types of microorganisms, right? We talk about microorganisms all the time, like what is that? What could it be? And it can really be anything. Bacteria, it could be a virus, it can be a fungus, it could be an algae or a protozoa. And so, we just want to make sure that we're trying to prevent any of those from getting into our patients.

I would make sure that you're just generally familiar with just the shape of different kinds of bacteria. So, for example, there's some that look like a sphere, some that maybe look comma-shaped. I think that the most common questions that I know I've seen are things like, what kind of bacteria is rod-shaped? So, if you don't know the answer to that, make sure that you go into your e-book and review your lesson again.

Also, knowing the difference between aerobic versus anaerobic. So, if something is aerobic, that is an organism that requires oxygen. If it is anaerobic, that means that organism can live

without oxygen without problem.

So, those are also important to know. And let's see, what else? Oh, knowing about MDROs. So, this is multi-drug resistant organisms.

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Very scary if this does happen to your patient. We commonly see it for things like MRSA, you may hear that, or VRE. So, MRSA is MRSA, and that stands for methicillin-resistant staphylococcus aureus.

So, basically, that's a staph infection that will not be treated by traditional methicillin treatment. And then there's vancomycin-resistant enterococci VRE. You might hear that as well.

So, that is basically a different type of infection that will not at all be properly treated with vancomycin. So, that means that we need to look for different options for how to treat those patients. And these MDROs, multi-drug resistant organisms, you know, they've developed resistance to certain drugs that frequently were used to treat them.

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And basically, MDROs are often caused by overuse of antibiotics, which is why, you know, some providers have really cracked down on using antibiotics if it's not necessary. Okay, I think we covered a really good amount of the content in here. And yeah, if any questions still exist, for sure, you know, book some scheduling, book some scheduled time with any of our coaches, and make sure that you are reviewing your e-book and the corresponding chapters there.