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Latest Updates in Treating Pneumonia

Announcer:
You're listening to Conference Coverage on ReachMD, captured on location at the American Society of Consultant Pharmacists Annual Meeting and Exhibition in National Harbor, Maryland. Your host is Mario Nacinovich.

Mr. Nacinovich:
Coming to you from the American Society of Consultant Pharmacists Annual Meeting and Exhibition in National Harbor, Maryland, this is Reach MD. I am Mario Nacinovich, and joining me to review and discuss the latest updates in treating pneumonia is Kalin Clifford, PharmD. We'll be focusing on the older adult and hospital-acquired or nosocomial pneumonia, HAP, and ventilator-associated pneumonia, VAP, both of which are notable causes of morbidity and mortality despite improved prevention, antimicrobial therapy and supportive care.

Dr. Clifford, welcome to the program.

Dr. Clifford:
Thank you for having me today.

Mr. Nacinovich:
So let's start off with a really basic question. What is health care-associated pneumonia, or HCAP?

Dr. Clifford:

So health care-associated pneumonia, or HCAP, is actually an old term that has actually been written out of the guidelines recently. What it used to encompass was a lot of our older adults who did reside in a nursing home, a long-term care facility, rehab facilities, because again, they are at a higher risk of having more dangerous, more endemic pathogens that could have higher rates of resistance and maybe not be as well treated with our current antibiotics that we have. However, with the recent guideline updates for the hospital-acquired and ventilator-associated, they have actually written out the diagnosis of HCAP at this point. We're hoping that with the new community-acquired guidelines that are set to come out later this year, early in 2019, that we'll actually get some new, updated recommendations on how to handle the patient that does have more risk factors but maybe not at such high risk that they are in the hospital for treatment.

Mr. Nacinovich:
So anyone that's been using the term HCAP and continues to use it is actually incorrect. They should be using H-A-P, or HAP, for hospital-acquired or nosocomial pneumonia. Tell us a little bit about what this is.

Dr. Clifford:
All right. So, hospital-acquired pneumonia—or HAP is how it's more commonly known in practice—is something that we don't diagnose until the patient has likely been in our institution for at least 48 hours or more, so usually these patients will start developing symptoms after 48 hours of being hospitalized. Sometimes a lot of our patients that have different types of procedures such as CABGs or any other orthopedic procedures that require a little bit longer of a hospitalization, they are at a high risk for developing this hospital-acquired pneumonia. And the reason why this is so significant that there is a specific time cutoff is that this shows us the risk of more dangerous pathogens such as pseudomonas, such as MRSA, that require more broader therapies to be used.

Mr. Nacinovich:
So tell us a little bit about ventilator-associated pneumonia, and how does this develop?

Dr. Clifford:
Ventilator-associated pneumonia is a little bit different than hospital-acquired pneumonia. Again, these specifically happen in patients, again, usually at least 48 hours but sometimes up to 72, 96 hours before they actually develop. And the reason why these actually do develop is, again, once a patient is ventilated, you're almost forcing some of the pathogens that are within your esophagus down into the lungs, and you're almost kind of causing a trapping effect because the patient really isn't able to cough anything out because they have the ventilator down their throat, so if they are unable to cough anything out, this increases the risk of infection. And usually with these patients, they are in such an acutely ill

state that they are at risk for even worse pathogens, such as some of our carbapenem-resistant Enterobacteriaceae, some of our MRSA patients are methicillin-resistant, staphylococcus aureus and also our Pseudomonas aeruginosa patients.

Mr. Nacinovich:
So, given the definition of these two and how they also differ, tell us a little bit about the prognosis of patients that have been diagnosed with each?

Dr. Clifford:
Right. So, especially with hospital-acquired pneumonia and ventilator-associated pneumonia, there is an increase in mortality with a lot of these patients, especially if we're delayed in providing the appropriate treatment. So, again, with our talk today, we talked more about how the older adult doesn't really present with a lot of the normal symptoms that we expect in the normal time course that we expect. Often times it's more delayed. Sometimes we don't even really see a fever or cough even. Sometimes it's just a change in mental status, a change in O_2 saturation rates that really signal to us that there may be an issue or something else is really wrong with them, so often times we are delayed in our diagnostic criteria, and that's sort of where the mortality and morbidity come into play. A lot of times a lot of our older adults do need longer rehab stays in their acute rehab facilities to try to get back to a normal baseline function after pneumonia, especially hospital-acquired ventilator-associated.

Mr. Nacinovich:
In terms of the conditions that also may mimic the findings of HAP or VAP, what can the practitioner and the pharmacist and the care team together—how can they get confused by other comorbid conditions that may be occurring at the same time here?

Dr. Clifford:
Sure. So there's actually 2 or 3 comorbid conditions that can happen and cause some problems that almost masks the diagnosis, so a lot of times when a patient gets admitted to a hospital facility or there is an acute change in their behaviors or there is an acute change in their health status, one thing we do want to look at is: Do they have a history of congestive heart failure, chronic obstructive pulmonary disease or COPD? And pneumonia often mask each other a lot, because again, a lot of their exacerbation symptoms for CHF or COPD are usually a shortness of breath, dyspnea, difficulty expectorating, coughing issues, so again, they all kind of come together. What we really need to look at though is: How is the patient really presenting? It's really understanding: What was our patient doing before? Again, something that I call more: What is their state of normal? What is their normal behavior? What is their normal mood? By looking at this, we can sort of start pinpointing is this an infection or is it an exacerbation of another disease state.

Mr. Nacinovich:
For those just joining us, this is Mario Nacinovich on ReachMD. I'm speaking with Dr. Kalin Clifford on the recent changes in pneumonia treatment for the older adult focusing on HAP as well as VAP.

We spoke a bit earlier about some of the definitions and differences between HAP and VAP and explored together some of the conditions that may mimic the findings for each, but now let's shift over to the current treatment recommendations and some of your clinical pearls for antimicrobial stewardship and infectious disease management. So, Dr. Clifford, what are the current treatment recommendations for HAP and VAP?

Dr. Clifford:
All right. So, in regards to the current treatment recommendations for HAP and VAP that we have currently, these were recently updated toward the end of 2016. Early 2017 is when they started getting some clinical traction. Really, the current treatment recommendations really want us to look at: What is our antibiogram saying? What really is our MRSA prevalence? And what is also, just again, patient comorbid factors that we want to consider? So, again, in regards to HAP, it does kind of play into how long has the patient been in the hospital. So, for example, if the symptoms are happening within the first 48 to 96 hours, for example, or the first 2 to 5 days, we actually do see more—they're not as dangerous pathogens, but we are at risk for Pseudomonas; we are at risk for MRSA. Those are the 2 common ones that we do normally see with these. So, again, depending on what the hospital's or the facility's MRSA prevalence rate is, we may need to be more or less aggressive. So, for example, if they have a higher MRSA prevalence rate, we probably really want to be considering vancomycin in addition to a piperacillin/tazobactam to make sure that both pathogens are covered. Other antibiotics that will cover for Pseudomonas would be cefepime would be a great option as well, and some of our fluoroquinolones despite some of the recent warnings that have come up with older adults. So these are usually normal, broad-spectrum antibiotic recommendations that people have used in the past that have been effective.

Mr. Nacinovich:
In terms of the current IDSA and ATF recommendations, can you tell us a little bit about your thoughts on, even anecdotally, how these are currently followed?

Dr. Clifford:
So, in regards to these recommendations, I think they are being slowly incorporated into normal practice; and actually, it's much quicker in my experience where I currently practice. We do see these followed much more religiously, I would say, just to make sure that we are treating the patients appropriately, because we definitely know that with older adults, any sort of delay in treatment usually

is an increase in mortality, so we really do want to make sure that we are protecting our older adults as well as we can and try and make sure we get the antibiotics right the first time. But I also do see a lot of us are starting to be more cautious with streamlining antibiotic therapy, which is a good thing. We need to be appropriate with when we streamline. Are we really treating the right bug? Can we really minimize the risk of adverse events with these patients? If we do guess the wrong drug or if we try to—if we're using a different antibiotic, are we monitoring it appropriately? Are we doing everything appropriately?

Mr. Nacinovich:
Can you share some of your antibiotic treatment pearls for managing these different types of pneumonia?

Dr. Clifford:
Sure. So, one thing with the older adult that we really want to be more cautious with is our renal function monitoring. And also, depending on the agent, are we actually getting the appropriate levels? So again, for vancomycin we really still do need the trough levels in order to really make sure that we are at the appropriate dose, and also, are we being safe toward our patients—again trying to minimize the risk of harm with these antibiotics. With a lot of our other agents like our piperacillin/tazobactam, cefepimes, other cephalosporins and any penicillins that we may use for the treatment of pneumonia, we do need to really keep an eye out for renal function—again, especially with the older adult. If we aren't really adjusting for renal function, there is a risk of increasing, actually increasing the risk of... Actually, we do see some drug-induced seizures sometimes in these patients if we don't adjust these medications appropriately. Again, it's a rare effect, but it's one of the more dangerous ones that if it does happen, it kind of, again, can set us back a few steps. So we really do need to keep an eye on a lot of these patients. Other pearls that we try to recommend to our physicians that I see is, again, really making sure that the drug actually does get to the site of infection, so again, daptomycin probably isn't going to be the best option for these patients with pneumonia. It crosses into the lung, but unfortunately, the surfactin within the lung tissue actually deactivates it and breaks down the drug before it has any chance to be effective against the pathogen that's in the lung, so we really try to avoid that agent if possible unless there's a bacteremia component as well. In regards to other pearls, again, just making sure that we are providing that close monitoring, that we are really making sure that the patient is really getting the adequate dose, the adequate duration so the patient really gets the best benefit from the agent.

Mr. Nacinovich:
I think that's a great way to round out our discussion on this important topic of pneumonia. Certainly, without appropriate monitoring and treatment plans, we know that both types of pneumonia can

lengthen hospital stays and may consume considerable health resources in a variety of treatment settings for the older adult. In closing, recent studies of epidemiology, diagnosis, empiric treatment, response to treatment, antibiotic administration and disease prevention have each challenged many old paradigms in the treatment of pneumonia, and in some cases redefined the actual words that we're using to define pneumonia, so not only for pulmonologists and in intensivists but for all health professionals, including the pharmacists, who we now know play a critical role in the care of these patients.

I want to thank my guest, Dr. Kalin Clifford, for joining me to discuss hospital-acquired pneumonia and ventilator-associated pneumonia and the older adult. Dr. Clifford, it was great having you on the program.

Dr. Clifford:
All right, thank you for having me again.

Mr. Nacinovich:
I'm Mario Nacinovich. To access this episode and others about pneumonia, visit ReachMD.com where you can Be Part of the Knowledge. Thanks for listening.

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