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How a Critical Care Specialist Is Confronting COVID-19

Nacinovich:

For ReachMD, this COVID-19: On the Frontlines, and I'm Mario Nacinovich. On today's program, we'll get a clearer depiction of intensive care units across the country, as critical care specialists confront the coronavirus pandemic head-on. Joining me is Dr. Randy Young, former Director of the Division of Pulmonary and Critical Care Medicine at the Milton S. Hershey Medical Center in Hershey, Pennsylvania. Dr. Young is currently caring for critical care patients in the mid-Atlantic area. Dr. Young, welcome to you.

Dr. Young:

Thank you. It's great to join you today.

Nacinovich:

To start us off, can you share what it's been like for you in the ICU setting since the emergence of this pandemic?

Dr Young:

Yes, I think I can speak for everybody who works in these settings, that it is a totally new and topsy-turvy world. Not only do we have concerns about the personal safety for all the health care professionals who find themselves in contact with COVID-19 patients, but I think we also have serious concerns about our ability to provide these patients the care that they so desperately need, not only medical care, honestly, but also emotional care. Working with families and taking into account patients' personal and social concerns was always such a big part of what critical care professionals did, and now, we are severely handicapped in trying to meet those needs. We've got people whose families can't come visit, who can't be there to support them, so we're relying evermore on our ability to communicate with those families, not only for medical updates, but on behalf of the patient. It's really a whole different ball game. And then there are all the medical challenges that come with it. We're still learning how best to care for the respiratory failure and the sepsis-like syndromes, the renal failure, and the nervous system complications that patients with the coronavirus infections present, so I think everybody would say honestly, that our worlds have been turned completely upside-down.

Nacinovich:

So given the timeline of the virus' spread from China to the U.S., and the staggered fashion in which states started seeing cases, what were some of those challenges you and your team needed to prepare for in advance to respond better once it reached your hospital?

Dr. Young:

Well, I think some of the earliest challenges centered around the lack of available testing and the extraordinary inefficiency of the early generations of testing. It was taking days to get test results back, so, not only were we keeping people in isolation long beyond when they needed to be, but we were within that very uncomfortable situation of not knowing what our patients had, and having to make some presumptions. Thankfully, the testing is now more available, though not optimally available yet, in my opinion, and we're getting the test results in a matter of minutes to hours, not days, like before. I think some of the other early challenges were surrounding what kinds of ventilatory strategies we should be adopting inpatients. There was an early back-and-forth about should we treat them like ARDS patients, and we did not recognize that the physiology is very different, but some strategies, like proning patients when their oxygen levels continue to be a serious issue, makes a big difference, and I think that's a strategy that almost all intensive care units are employing. So we've now become a lot more comfortable with that than we used to be. As we've gotten used to dealing with the respiratory tract issues, we are now confronted with new challenges, like the frequency with which people develop problems related to thrombosis, and dialysis machines are in short supply in some hospitals. So the medical and the social challenges continue to befuddle us in many respects.

Nacinovich:

Dr. Young, what were some of the unexpected challenges that you and your colleagues have come across along the way?

Dr. Young:

I think the specifics of the lung injury that COVID-19 patients experience caught a lot of us by surprise. I think most of us were expecting it would be an ARDS lookalike, and that our strategies using lung-protective ventilation and high levels of PEEP and so forth would be more applicable than they are. I think the frequency with which acute kidney injury is seen in these patients is another one that people are just now sort of waking up to. The cytokine storm that patients with coronavirus infections so often manifest needs to be suppressed at the very time that you're trying to allow patients to fight off an infection poses a real dilemma. Many hospitals have protocols that involve cytokine antagonists like tocilizumab that we've previously used only for well-defined immune situations, such as the cytokine storm that occurs in leukemic patients who have gotten CAR-T cell infusions. The drugs that were quite helpful in that setting may turn out to be helpful in the COVID-19 setting as well. So, I think there's just lots of things that we don't have any organized history with. We have a lot of anecdotal experience in settings that may or may not be applicable to the current situation, but we're having to rely on those experiences, rather than having the results of well-constructed and carried out clinical trials which are in progress, but for which we won't have answers in quite some time.

Nacinovich:

For those just tuning in to ReachMD, this is COVID-19: On the Frontlines. I'm Mario Nacinovich, and today I'm speaking with Critical Care Specialist, Dr. Randy Young about his team's experiences confronting COVID-19. So, Dr. Young, now that we've got a better sense of the challenges that you and your colleagues have faced in the ICU, let's focus on some of the solutions and adaptations made in response. First off, what were some of the novel workarounds that had to get implemented over time to address staffing and/or equipment shortages?

Dr. Young:

Well, I think that the equipment shortages have been a real issue in some areas, such as in New York City, but many parts of the country haven't turned out to be quite as severe as we were afraid. I've personally not had to ventilate two patients with the same ventilator, like they were talking about having to do. I think adapting physical plants of our hospitals to do the best we can to assure health care worker safety is one of the most important things. I've been fortunate to work in institutions where we can turn entire ICU's into COVID units, and make sure that the rooms are negatively pressurized, and that we can have places to don and doff equipment. What we really needed was a whole series of hospitals to be geared up like the highly contagious pathogen units that we contemplated constructing around the time of the Ebola outbreak, back in 2014, 2015. There are a small number of those hospitals, but most hospitals were not geared up to deal with highly contagious pathogens like this. I think that we'll all know a lot better a year from now, when we really get a sense for how widespread the infection has been. We're needing to figure out how to do all the supportive care for patients. What kinds of nutrition is important to them? What kinds of secondary bacterial infections are they prone to getting, and so forth. Those are all things that are unknown at this time that we're sort of divining answers to as we move forward day by day, week by week.

Nacinovich:

Which strategies have you found to be more effective in keeping patients off ventilators, or minimizing the time that they would need ventilation support?

Dr. Young:

Well, I think patient positioning is turning out to be very important. Even people who are on nasal oxygen or high-flow nasal oxygen strategies sometimes do significantly better when they self-prone, and lie on their stomachs as opposed to on their backs, so that's one strategy. I think we've learned that we don't need to be so worried about providing them high FiO2's, when they're in their early days on the ventilator, and that maybe we can avoid some of the pressure-induced lung injury that we recognize occurs in other settings. So I think keeping people dry to the extent that we can, which is all obviously complicated by renal insufficiency, trying to keep their lungs as open as we can with good respiratory therapy and preventing aspiration, and to not use such high pressure strategies in limiting PEEP, if we can help it, and relying more on oxygen delivery to help them meet their gas exchange needs is important. This can all get very, very complicated, of course, in people who have pre-existing heart and lung disease. Having cared for some patients with severe pre-existing COPD poses real challenges because it's very hard to ventilate those people and achieve adequate levels of CO2 excretion and oxygen demand. So, if we can't ventilate them adequately because of underlying obstructive lung disease and the superimposed infection, then their renal failure becomes an even bigger issue, in terms of maintaining acid-base chemistry and and so forth.

Nacinovich:

Nacinovich:

What about measures designed to protect your staff while delivering care? Were any special protocols implemented on that front?

Dr. Young

Yes, I think every hospital has really revved up their personal protection strategies. We pay special attention to staff protection whenever we undertake an aerosol-generating procedure. Even something as simple as giving somebody a nebulizer treatment can generate an aerosol that is potentially infectious. So making sure we are usually doubly masked, if we're in those settings, or wearing positive air pressure masks like PAPR devices and things like that can be highly effective. It's relatively easier when we've got adequate supplies of masks and gowns and things like that, but I know people working in hospitals in Philadelphia and New York where those kinds of things are constantly having to be cleaned and reused because the supplies are inadequate. I think having the luxury of negative pressure rooms is a real advance. If you get so many air changes per hour, it really helps diminish the viral burden that's in the air, and that ends up landing on surfaces where they can be acquired, and so forth. I think ideally we have people who can work together, in 2-person teams, to make sure that they're appropriately careful in donning and doffing their protective equipment before and after they have a patient encounter. Having people who can do outside-the-room tasks, as opposed to being in the room themselves can be a wonderfully helpful adjunct, so that people don't have to be constantly donning and doffing equipment, because it's during the changes like that that people have chances for self-contamination. And having somebody who can go run and get a new IV bag, or a new bag of dialysis fluid, or another blood gas kit, or central line kit, those are the kinds of things that can really increase the efficiency of patient care, and in my opinion, increase the safety of providing that care for the individual front line and the individual worker

Nacinovich:

Lastly Dr. Young, let me open up the floor to you for the final word. Any key takeaways, or lessons learned that you'd like to pass along to our listeners?

Dr. Young:

I think probably the primary lesson is that although it sounds a little trite to say it, we really are all in this together, and everybody involved in providing health care and societal support to critically ill patients needs to work together and needs to have each other's back. I think the emotional toll and the toll of fatigue that caring for patients with such severe needs really does exact a price from health care professionals. The support that we give each other is so very valuable. I think we're learning new medical lessons that will take awhile to coalesce. I think, reading organized accounts of people's experience, managing respiratory failure and renal failure and cytokine storm in patients with COVID-19, among all the other challenges that they present to us, will be very valuable experiences. It's hard to learn those along the way. I think we'll have a much better idea in hindsight, once we've accumulated and had a chance to organize and digest that experience. But I think we can't, overstate the fact that we need to be better prepared for the next time this comes down the pike.

Nacinovich:

Well, that's all the time we have for today, but I want to thank Dr. Randy Young, not only for joining me to share his experiences, but for fighting the good fight and for continuing to provide such great care for patients during such a difficult time. Our support and gratitude go to you and your colleagues, Dr. Young. Thanks so much.

Dr. Young:

Thank you for letting me join you. It's been a pleasure.

Nacinovich

For ReachMD, I'm Mario Nacinovich. To access this episode, and others from COVID-19: On the Frontlines, visit reachmd.com/covid-19, where you can be part of the knowledge. Thank you for listening.