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Resident Spotlight: Mishita Goel, MD, PRG-2 Internal Medicine
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Residency Times interviewed Dr. Goel about her case study on twins with COVID who had very different disease outcomes, published in the Journal of Medical Cases and subsequently featured in a New York Times article, "Twins With Covid Help Scientists Untangle the Disease's Genetic Roots," on Jan. 18.

Tell us a little about your background. When did you first become interested in medicine as a career?

I grew up in Karnal, a city known as the Paris of Haryana, which is a state in Northwestern India. There were no medical professionals in my family, but my parents instilled in me values such as self-reliance and philanthropy at a very young age. These ideas were further nurtured when I played a doctor in a school drama, an experience that gave me an opportunity to identify the nascent desire of finding a purpose in life. Having little guidance about a career in medicine was a significant challenge that I eventually overcame with hard work and constant support from my parents, and as a result I became the first in our family to pursue medicine. I was accepted into one of the most prestigious medical schools in India, Lady Hardinge Medical College, located in New Delhi, which also holds the unique distinction of training exclusively women undergraduate students.

Why did you decide on Internal Medicine as your specialty?

During medical school, it was the Internal Medicine rotation where I had the opportunity to explore a variety of interesting patient presentations. IM is the specialty where every case is like a puzzle, and I've loved solving puzzles since childhood. In addition, the scope of this specialty is so vast, that one never stops learning and gets to be a better version of oneself every day. I also learned many life lessons during my IM rotation, where I saw how life can suddenly turn around in most unexpected fashion and that we have to live with it. All this intrigued me to pursue IM as my specialty.

Do you have prior experience in conducting research?

My first research experience was as a medical student. As part of a short-term studentship (STS) program by the Indian Council of Medical Research (ICMR), I engaged in a cross-sectional study with my mentor where we evaluated health-related quality of life and its predictors in a sample of outpatients presenting to our hospital with diabetes mellitus. The project was also awarded the STS scholarship by ICMR. In addition, prior to my residency, I worked as a volunteer research assistant in the Department of Endocrinology at Rush University in Chicago where I engaged in several research projects, including study of the influence of insulin administration on illness perception in patients with Type II diabetes mellitus, analysis of the institutional prescription patterns of anti-osteoporosis

medications, and development of a case report on a diagnostic algorithm for hypervolemic hyponatremia. Simultaneously, I pursued research projects with the Department of Cardiology at Rush University. I got the opportunity to formulate study design, abstract data, perform analysis and write manuscripts. This experience was very helpful to me in terms of learning and applying the essential concepts of clinical research.

Your published case study, “Clinical Course of COVID-19 in Identical Twins,” co-authored by current resident Victoria Gonzalez, program alumna Reina Badran, and faculty mentor Vesna Tegeltija, was featured in the *New York Times*. Can you describe the important findings of your research? What was it like to have your research recognized at this level?

COVID-19 pneumonia has been shown to have variable clinical presentations ranging from asymptomatic to acute respiratory failure and death. The identical twin case provided us with a valuable opportunity to identify indicators of clinical severity and disease outcome. Both women presented with COVID-19 pneumonia but had a very different disease progression. We then reviewed the twins’ symptoms, oxygen requirement, chest X-rays, and lab values and found that uncontrolled diabetes was not a predictor of severe disease, since the twin with uncontrolled diabetes compared to the other with prediabetes had a quick recovery. Our study suggests that a rising CRP, rising WBC, and a decreasing lymphocyte percentage may indicate worse clinical outcomes.

It feels good indeed when your work is recognized at any level. During the pandemic, research projects in many other fields were ramped down, since most study was directed toward answering COVID-related questions. As an intern, I lost the chance to attend any national/international conferences. However, the pandemic did change my perspective on life, for the good.

What are your other research interests?

I have been involved in multiple research projects: impact of angiotensin- converting enzyme inhibitors and angiotensin receptor blockers on the severity of Covid-19, COVID prognosis in patients with underlying CKD, and utilization of procalcitonin in the discontinuation of antibiotics. My research interests include preventive medicine. I am currently working on a QI project to improve screening of cardiovascular diseases in a resident-managed IM clinic. Other projects I am working on are still in incipient stages.

What are your plans after completing your residency?

All my learning and experiences so far have cemented my goal to be an academician. I plan to be a cardiologist, so I plan on applying for a cardiology fellowship after residency, unless destiny has something else in store for me 😊

Would you like to add anything else?

Early in the pandemic when everyone was learning about this novel virus, I volunteered to work in critical care unit during my elective rotation to acquire first-hand knowledge of the situation. Providing patient care during the pandemic was my call of duty and I just responded to it. I believe the hospital administration, staff, and nurses went above and beyond the call of duty. Yes, we all were scared about our fate and families. It was only during the pandemic when the feeling of being oceans away from my family hit me hard. But as I mentioned, the pandemic altered my views on life, especially how we all find a way through the toughest circumstances.