Cardiomyopathies—such as hypertrophic cardiomyopathy (excess thickening of the heart muscle), dilated cardiomyopathy (thinning and weakening of the heart), and arrhythmogenic cardiomyopathy (replacement of heart muscle with fat cells and scar tissue)—are the leading cause of sudden cardiac death and can often be practically symptomless, until it is too late, or can manifest as arrhythmias or severe heart failure.

Such cardiomyopathies are complex genetic diseases that can either be inherited or arise from de novo mutations, with many genes contributing to and modifying the condition. Ali J. Marian, the director of the Center for Cardiovascular Genetics at the University of Texas Health Science Center in Houston, has devoted the majority of his career to determining exactly what those genes are and how they drive pathology.1–5

Rather modestly, however, he told Circulation Research in a recent interview that his scientific contributions have been largely incremental, and only time will tell about the magnitude of the increments and their significance. Though, he hopes, of course, that his contributions lead to a better understanding of these important diseases. He also spoke about his upbringing in Iran, his covert move to the United States, and his suggestions for success in science—a mixture of finding one’s desire, discipline, hard work, and a healthy intermingling of science and family life.

Tell Me About Your Childhood. You Grew Up in Iran?

During my high-school years, we were settled in Tehran, but originally we were from a small place called Marian—that is where our name comes from—in the northern part of Iran, ≈30 km from the Caspian Sea toward the mountains.

And every summer we used to go there for a month. We had a summer home there and it was the best place, the most memorable place for Iran for me. It is a beautiful region.

My father was a Supreme Court judge and was exceedingly disciplined, hard-working, and structured as well as honest to an extreme. For example, if you came to our house and sat down and chatted as a guest, and during the conversation you had a legal question, and let us say you brought a small gift or a cake, my father would consider it a bribe. He would give it to the first homeless person he saw on the street—he was that strict about not being influenced by anything except facts.

Where Did Your Interest in Science Come From?

Growing up in Iran, the idea was that you either had to be a doctor or an engineer, or go to law school. And although my father was a judge, the impression that we children had was that medicine was more important. My father always emphasized medical education being more of a priority than legal education. He thought that medicine had better opportunities to serve people than the legal system.

Priority number one was education, education, education, he would say. We used to tell him, no, no, no, money is more important than education! Anyway, I went to medical school, and from my earliest days there I was interested in cardiology. Back then, cardiology was much more academically oriented than the rest of the medical field. Those were the days that Gene Braunwald, John Ross, and Ed Sonnenblick established the foundation of cardiac mechanics and hemodynamics—it was a very dynamic field.

I remember that in the last year of medical school I read a book called The Heart by J. Willis Hurst. It was a major textbook in cardiology, ≈2000 pages long. I read it four times in one year—every page including references. I was so obsessed with cardiology, it was pathological.

Medical school gave me a solid foundation in clinical cardiology, but I also always wanted to make scientific discoveries. My initial interests were in clinical research, but gradually as I moved forward in life I realized that science goes much deeper and that brought me to molecular cardiology.

After medical school, I left Iran—but that is a story I should tell you over a bottle of wine.
We Do Not Have Wine, But Come on Tell Me About it.

Around the time I was finishing medical school, Iran went to war with Iraq. If I stayed in medical school I would not be drafted, but if I graduated then I would be, so I decided to write a long thesis. It was 1300 pages on sick sinus syndrome, which now occupies only a paragraph or so in the textbooks! It took about a year or so.

But in that time, the law changed: you were allowed to go to remote areas of Iran and offer medical services instead of being drafted. I was the first in line. I volunteered to go to Baluchistan, which is in the southeast part of Iran near Pakistan and Afghanistan, right on the border.

My time there was probably the most useful of my life in terms of my impact on society. We were in a hospital with 60 beds. And because people were getting ill with gastroenteritis and pneumonia and routine stuff like that, any minimal intervention—some simple antibiotics, a little fluid—made a great impact. There was immediate gratification.

Then, I decided to pursue higher education and research in the United States. But, at that time, there was no US embassy in Iran. So, I hopped over the border to Karachi in Pakistan and to the US embassy. I naively said, “I’m here to go to the United States of America. Which way please?”

I actually returned back to Iran for a little while, and then my paperwork was transferred to Madrid in Spain, so I came to America from there.

Where Did You Go When You Arrived in the United States?

I went to Alan Ross, then Chief of Cardiology at the George Washington University, and said, “I am here to do research!” I worked for his research team, doing both clinical and laboratory research—hemodynamics and electrophysiology. Then I went to do a residency in internal medicine in Chicago. While I was there, I was looking for programs that offered research in molecular genetics and cardiology. I discovered that Baylor College of Medicine offered a wonderful program where you did three years of clinical cardiology and then two years of laboratory training in molecular genetics. I applied but did not hear back, so I thought, “ok they didn’t want me.”

But as I was going to an interview at University of California Los Angeles for another position, I got a phone call from Robert Roberts’s office saying, “How come you didn’t respond to our invitation?” It had got stuck in the mail chute and I received it several months after they had already assigned the position. Anyway, I came to Baylor on the way to University of California Los Angeles and signed up for a fellowship with Dr Roberts that day!

I did my clinical cardiology training and studies in molecular genetics, and then I stayed on as faculty.

What Is Your Proudest Research Achievement?

My hope is that our contributions one day will help to prevent these potentially deadly diseases. The reality is that with scientific discoveries, you only know which are the good ones when they stand the test of time. So, if it turns out in 50 years that what we have learned about the pathogenesis of arrhythmogenic cardiomyopathy is still true and contributes to the treatment of the disease, that would be something I would be very proud of.

Have You Had Any Career Low Points?

Fortunately, I guess not. Maybe it is arrogance. Grants get rejected and papers get rejected, but it does not bother me that much because it is just the opinion of two or three scientists and it does not mean they are right or I am wrong. I am very philosophical about that—it is perfectly legitimate to have different opinions.

So, no, there has never been a low point in my scientific life. I consider myself exceedingly fortunate.

It is a privilege to do research because you are primarily using tax payers’ money to test your hypotheses—approved by your peers of course—but still it is a marvelously privileged situation.

What Is the Most Rewarding Part of Your Job?

The care for patients is ultimate, because “the secret of the care of the patient is in caring for the patient,” to quote Francis Peabody. Yet at the end of the day, every time I take care of the patients, I ask myself, “Do I know what I’m doing?” And I tell you I confidently do not know.

That is what guides you to research—when you realize how little we actually know. That is also the beauty of patient care—that it always reminds you what you do not know.

If you only practice research and do not see patients, then you are really not in the medicine game at all. It is akin to Sir William Osler’s famous quotation: “To study the phenomenon of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all.” So, to me seeing patients guides my research.

What Advice Do You Have for Young Scientists?

I follow what Rosalind Franklin said about personal life and science: “Science and everyday life cannot and should not be separated. Science, for me, gives a partial explanation of life. In so far as it goes, it is based on fact, experience, and experiment.”

But Lots of People Suggest That Compartmentalizing Your Life Is Key

For me it has to be a continuum. That does not mean you do not spend time with your family, or that when you are with your family you do not think about work. If science is a continuum, you will wake up at 2:30 in the morning and think about a question. Science does not stop at 5 PM. If you want that, in my opinion you are in the wrong field. Though, it is only my opinion, it might work differently for others.

It works the other way too. If one of my sons is sick, my mind is thinking about him when I am at work. And the fortunate thing about research is that it offers some flexibility if family issues need to be taken care of. It works both ways.

What Is Your Average Day?

I have a very structured life, which is not necessarily good. I come to work around eightish and go home around sevenish, spend a couple of hours playing with my kids. And after my twin boys fall asleep at 9 PM, I go and play tennis from 9:30 to 11:00 PM. I come home with lots of adrenaline, so I work till around midnight or 1 AM and then go to bed. And wake up 6:30 AM, the same the next day.

That Is Not Much Sleep!

I get about five or six hours. Sleep is very important for proper functioning of the brain, but some of us are fortunate enough not to need more than that. For me, I just wake up after six hours. I certainly would not recommend anyone to give up sleep. Good quality sleep is essential. That is the best way for the brain to work at its best.

You Work Long Hours. How Important Is Hard Work?

I really do not consider it hard. It is a joy. We are extremely privileged members of the society to have research dollars to test our hypotheses, as I said.
Also, if I do not work the way I do, I get withdrawal symptoms. On weekends, if I am tied up with a lot of nonacademic activities and I did not have a chance to read my journals or write, I get grouchy. It is the same with tennis—if I do not play for a couple of days I get grouchy.

Do You Have Any Other Advice?

Oh I have lots of advice, but who is there to listen? That is the problem!

I think everybody has to find what his or her heart truly desires in life. That is the most important element for success in my opinion. So listen to your inner core and ask, “Is this truly what I want to do?”

If you are fortunate enough to know what you want and the opportunity is given to you, then you have to have a structure, discipline, organization, and be willing to work hard for all the elements to come together to make you successful. It is not sufficient to say, I have found what my heart desires to do. If you do not commit to that and work hard on it, then it will be tough. You have to set the bar very high for yourself and shoot for the stars.

Disclosures

None.

References


Ali J. Marian: Life and Science Are One
Ruth Williams

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