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Keeping the Person in Personalised Medicine

As Personalised Medicine endeavours to discover more specific aetiologies and treatments of disease based on genetics and basic science research, it is crucial to maintain a focus on the patient-doctor relationship in order to more fully optimise patient care.

In a world where the cutting edge is a crowded place, and people's lives are at stake, healthcare is an industry where growth is happening inward rather than outward. Solutions are being discovered by diving deeper into issues rather than spreading more broadly. Personalised Medicine, also referred to as Precision Medicine, is the science of making care better by being more specific in assessments, diagnostics, and treatments. Its defining feature is innovating on the very basis of what makes each person unique down to their genetic core. Yet, as medical research and technology improve our ability to learn about patients along with what makes them healthy, what causes disease, and what treatments might be more effective, it may be ignoring what patients often yearn for - the age-old therapeutic patient-doctor relationship.

In medical education, there is a distinction made to differentiate between the words illness and disease. A disease is a pathological state that is diagnosed through history-taking, physical examination, and testing. It can often be treated, ameliorated, and even cured by various means. An illness is a much broader term that is defined by a person's experience in having a diagnosis. It encompasses not only the impact of the disease, but their personal journey through obtaining that diagnosis, the associated symptoms, the treatment, and the after-effects. It is taught that while medication or other therapy may cure a disease, what makes the patient-doctor relationship so special is the ability - the privilege - of treating the whole patient's illness. This concept is what may be at least partially lost when the medical community seeks finite answers to more complex issues.

Although one might think that being able to produce such definitive information such as could be provided by cracking the entirety of the wealth of information that the genetic code offers would make the art of medicine obsolete in favour of hard science that can prevent and/or cure all, this is not necessarily the case. An example of this has been researched using allergic responses. The pathophysiologic mechanism of an allergic response has been well-delineated along with excellent, specific therapeutic targets to prevent it. In this study, patients received a skin prick containing histamine, which causes a type of allergic response, and their symptoms of itchiness and irritation were measured. Approximately half of the patients were told by the doctor after three minutes that their symptoms would start to improve and the other half were not. The researchers examined how this simple comment of reassurance affected patients' perception of discomfort from the skin prick. They found that although physiologically this comment should not affect the histamine reaction occurring in the skin, patients who were reassured had significantly improved symptoms after hearing that comment compared to those who did not get any reassurance (Leibowitz et al. 2018). What this infers is that the patient-doctor relationship is in itself therapeutic. The idea that if a patient thinks something will help them, it actually does help, is known as the placebo effect. It is widely shown in various areas of research to be more effective than nothing, yet its ability to have these pleiotropic effects remains mysterious.

> **"Personalised Medicine has emerged as a means to take the field of medicine to the next level"**

Personalised Medicine has emerged as a means to take the field of medicine to the next level. The National Institutes of Health (NIH) has led a nationwide initiative in the United States called All of Us, which is a research programme seeking to collect genetic data on at least one million Americans from diverse backgrounds in both healthy and diseased states in order to help answer questions facing the medical community. With enough data, the hope is to be able to discover a genetic basis for why certain people develop certain diseases and help identify which people that have diseases might have specific therapeutic targets available to them.

Better yet, this information could ultimately help determine which diseases could be prevented altogether. In 2016, the NIH committed $200 million to this (About the All of Us Research Program 2019).

Certainly, doctors and patients would agree that better solutions to the health problems facing people - some largely preventable at epidemic proportions such as heart disease - are desperately needed. Medical research, in particular, the application of technology, likely has the power to solve many of these complex questions in due time. Through Personalised Medicine initiatives, there may very well be definitive answers one day to questions about whether someone will get cancer or have a heart attack. Doctors, or even computer algorithms, might be able to recommend medications for diseases based on genetic mutations that cause disease. However, as answers to questions

> **“in order to fully help people, we must not only try to cure disease, but treat patients, and maintain humanism in medicine”**

about the health of patients becomes more precise, doctors must realise that in order to fully help people, we must not only try to cure disease, but also remember to treat patients, positively affect their illnesses, and maintain humanism in medicine. We must remember that helpful answers are not only found by looking deeper, but also by looking to the patient. ■

Conflict of Interest
Mark P. Abrams has declared no conflict of interest.

Key points

- Personalised Medicine, also known as Precision Medicine, is an initiative to discover the basic science and genetic basis of both healthy and disease states.
- While a disease is a name for a diagnosis, illness is a term that encompasses a person's experience of symptoms, diagnosis, treatment, and living with a disease.
- The patient-doctor relationship has been shown to influence the effectiveness of different medical treatments, possibly related to the placebo effect.
- While evidence-based treatments emanating from Personalised Medicine may offer hope for better health outcomes, patients also benefit from the relationship they have with their doctor.