Tailoring medical treatment in Pakistan: The promise of precision medicine

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Madam, I am writing to discuss the rapidly evolving field of precision medicine (PM), an exciting and highly relevant topic that has garnered increasing attention in Pakistan in recent years. PM is an approach that considers individual differences in genetics, environment, and lifestyle to tailor medical treatment for each patient, rather than relying on a one-size-fits-all approach[1].

There are several potential benefits of PM for patients in Pakistan. By tailoring treatments to individual needs, PM can lead to more effective treatments and improved patient outcomes. For instance, a recent study found that PM approaches resulted in better outcomes for patients with head and neck cancer[2]. We can also see big applications of PM in diabetes, which is quite a common disease in Pakistan. PM can revolutionize diabetes care by utilizing genetics to inform diagnosis, therapy, drug dosage, monitoring, and treatment of complications, while it may not yet be widely used, it is expected to become a routine aspect of diabetes care in the near future[3]. In addition, PM can reduce healthcare costs in the long run by avoiding unnecessary treatments and hospitalizations[4].

Despite these benefits, the adoption of PM in Pakistan is still in its early stages. There is progress to be made in implementing PM in the country, and several challenges must be overcome such as investment in the infrastructure, training, research, and development required to make PM more widely available and affordable. One big issue regarding PM is its role in the public health domain, as public health experts have expressed doubts about prioritizing individualized approaches for treating sick individuals instead of population-based prevention programmes that consider broader factors affecting health like behaviour, environment, and society[5]. But populations managed by PM contribute to a vast amount of data with their unique genetic and socioeconomic traits. Through the analysis of this data using more modern technology, such as machine learning, high risk people may be predicted, which is a game-changer for public health[6].

To achieve this reality of PM, there is a need to invest in infrastructure, training, and research in this field. In conclusion, PM has the potential to revolutionize healthcare by providing personalized treatment options based on individual factors such as genetics and lifestyle. While there are challenges to implementing PM in LMICs, the field is advancing rapidly, and ongoing research is providing hope for the bright future of personalized medicine in Pakistan.

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