Exploring novel therapeutic approaches in clinical nephrology: From bench to bedside.

Hossein Alidadi*

Department of Pathobiology, Ferdowsi University of Mashhad, Iran

Introduction

The term "glomerular diseases" refers to a broad spectrum of kidney ailments that are characterised by glomerular damage, inflammation, and dysfunction. Empirical immunosuppressive treatments are a common component of traditional therapeutic approaches, however patient responses to these therapies can differ greatly. Personalised medicine techniques have the potential to maximise therapeutic efficacy and reduce treatment-related side effects by customising medicines to each patient based on their specific genetic, molecular, and clinical characteristics. An overview of personalised medicine techniques, including as genetic testing, molecular profiling, biomarkers, imaging modalities, and precision medicine methods, is given in this study with regard to the therapy of glomerular disorders. The state of the research in these domains, potential applications, and obstacles to integrating personalised medicine into clinical practice are also covered. Personalised medicine methods integrated together have the potential to transform the management of glomerular diseases, improving outcomes and quality of life for affected individuals. Further research is needed to validate the clinical utility of personalized medicine approaches and identify novel biomarkers and therapeutic targets for individualized interventions in glomerular diseases. [1]

A diverse range of kidney ailments known as glomerular diseases are typified by inflammation, damage, and malfunction of the glomeruli, which are the functional units of the kidneys that filter blood. These diseases cover a broad spectrum of disorders, such as lupus nephritis (LN), membranous nephropathy (MN), IgA nephropathy (IgAN), and focal segmental glomerulosclerosis (FSGS). Significant morbidity and death are linked to glomerular disorders, which can continue kidney function loss and, in certain situations, result in end-stage renal disease (ESRD) [2].

The conventional methods of treating glomerular disorders have predominantly depended on empirical immunosuppressive medications, which include corticosteroids, immunosuppressants, and cytotoxic medicines. The primary objectives of these therapies are to mitigate immune-mediated inflammation and decrease proteinuria. However, patients might respond to treatment in a variety of ways, and many people have side effects, relapses, or resistance to the medication. Additionally, traditional treatment strategies may not target the underlying molecular mechanisms driving disease pathogenesis, leading to suboptimal outcomes. Personalised medicine techniques have garnered increasing attention in the management of glomerular disorders in recent years. Precision medicine, another name for personalised medicine, is the practice of customising medical treatments for individual patients according to their distinct clinical, molecular, and genetic traits. Through an understanding of the molecular pathways that underlie the aetiology of disease in individual patients, personalised medicine techniques. The goal of this review is to give a thorough overview of personalised medicine strategies for glomerular disease management. In important domains such as genetic testing, molecular profiling, biomarkers, imaging modalities, and precision medicine methods, we will talk about the data that is available now and where it is headed, as well as how it might affect patient outcomes and treatment choices. We will also look at the potential and problems that come with applying personalised medicine techniques to clinical practice, such as technology constraints, moral dilemmas, and inequities in healthcare [3].

This review aims to educate physicians, researchers, and policymakers about the potential of personalised medicine to transform the treatment of glomerular diseases and enhance patient outcomes by summarising the most recent research and outlining promising future approaches. Personalised medicine techniques have garnered increasing attention in the management of glomerular disorders in recent years. Precision medicine, another name for personalised medicine, is the practice of customising medical treatments for individual patients according to their distinct clinical, molecular, and genetic traits. Through an understanding of the molecular pathways that underlie the aetiology of disease in individual patients, personalised medicine techniques present a promising avenue for

Because glomerular disorders are varied and patient responses to treatment vary widely, they present substantial hurdles for clinical management. Even while they can be beneficial in certain situations, traditional therapy approaches can not fully address the underlying molecular pathways causing the pathogenesis of the disease, which could result in less than ideal results and unfavourable side effects. Customising medicines for each patient according to their distinct genetic, molecular, and clinical profiles is a viable path for optimising

***Correspondence to**: Hossein Alidadi, Department of Pathobiology, Ferdowsi University of Mashhad, Iran, E-mail: hossein@alidadi.ir

***Received:** - 02-Dec-2023, Manuscript No. aacnt-24-127532; **Editor assigned**: 04-Dec-2023, PreQC No. aacnt-24- 127532(PQ); **Reviewed**: 18-Dec-2023, QC No. aacnt-24- 127532; **Revised:** 22-Dec-2023, Manuscript No. aacnt-24-127532(R); **Published**: 30-Dec-2023, DOI: 10.35841/ aacnt-7.6.178*

***Citation:** Alidadi H. Exploring novel therapeutic approaches in clinical nephrology: From bench to bedside. J Clin Nephrol Ther. 2023; 7(6):178*

the management of glomerular diseases through personalised medicine techniques [4].

An overview of personalised medicine techniques, such as genetic testing, molecular profiling, biomarkers, imaging modalities, and precision medicine methods, has been given in this study with regard to the therapy of glomerular disorders. Although personalised medicine has a lot of potential to maximise therapeutic efficacy and reduce side effects associated with therapy, there are a few obstacles that need to be overcome in order to its full potential in clinical practice. Personalised medicine techniques have garnered increasing attention in the management of glomerular disorders in recent years. Precision medicine, another name for personalised medicine, is the practice of customising medical treatments for individual patients according to their distinct clinical, molecular, and genetic traits. Through an understanding of the molecular pathways that underlie the aetiology of disease in individual patients, personalised medicine techniques present a promising avenue[5] .

Conclusion

Technological constraints, such as the cost and accessibility of molecular profiling and genetic testing, may prevent personalised medicine techniques from being widely used. To guarantee equal access to personalised medicine interventions, ethical issues such as patient privacy and consent and healthcare disparities must also be properly taken into account.

In order to discover novel biomarkers and therapeutic targets for tailored therapies in glomerular disorders, as well as to confirm the clinical efficacy of personalised medicine approaches, more research is required. Translating research discoveries into clinical practice and advancing the field of personalised medicine need concerted efforts by researchers, physicians, patients, and policymakers.

To sum up, personalised medicine techniques have the potential to significantly transform the way glomerular diseases are managed by facilitating more accurate, efficient, and customised treatments. Utilising the most recent advances in genetics, molecular biology, and clinical informatics, personalized medicine has the potential to transform patient care and improve outcomes for individuals affected by glomerular diseases.

References

1. Momeny M, Neshat AA, Hussain MA, et al . Learning-to-augment strategy using noisy and denoised data: Improving generalizability of deep CNN for the detection of COVID-19 in X-ray images. Comput Biol Med. 2021;136:104704.
2. Cardenas CE, Yang J, Anderson BM, et al. Advances in auto-segmentation. Semin radiat oncol. 2019;29(3): 185-197.
3. Bhutani H, Smith V, Rahbari-Oskoui F, et al. A comparison of ultrasound and magnetic resonance imaging shows that kidney length predicts chronic kidney disease in autosomal dominant polycystic kidney disease. Kidney int.2015; 88(1):146-51.
4. Sigmund M, Ferstl R. Panel vector autoregression in R with the package panelvar. Q Rev Econ Finance. 2021; 80:693-720.
5. Hohmann E. Editorial commentary: Big data and machine learning in medicine. J Arthrosc Relat Surg. 2022;38(3):848-9.
6. Kistler AD, Poster D, Krauer F, et al. Increases in kidney volume in autosomal dominant polycystic kidney disease can be detected within 6 months. Kidney int. 2009;75(2):235-41.
7. Bhutani H, Smith V, Rahbari-Oskoui F, et al. A comparison of ultrasound and magnetic resonance imaging shows that kidney length predicts chronic kidney disease in autosomal dominant polycystic kidney disease. Kidney int. 2015;88(1):146-51.
8. Yang X, Le Minh H, Cheng KT, et al. Renal compartment segmentation in DCE-MRI images. Med Image Anal. 2016;32:269-80.
9. Bhutani H, Smith V, Rahbari-Oskoui F, et al. A comparison of ultrasound and magnetic resonance imaging shows that kidney length predicts chronic kidney disease in autosomal dominant polycystic kidney disease. Kidney int. 2015;88(1):146-51.
10. Kistler AD, Poster D, Krauer F, et al. Increases in kidney volume in autosomal dominant polycystic kidney disease can be detected within 6 months. Kidney int. 2009;75(2):235-41.

Citation: *Alidadi H. Exploring novel therapeutic approaches in clinical nephrology: From bench to bedside. J Clin Nephrol Ther. 2023; 7(6):178*