OPEN ACCESS Freely available online

Journal of Cell Science & Therapy

ISSN: 2157-7013

Opinion Article

Significance of Stem Cell based Therapies in Transplantation

Dave Obi*

Department Of Pharmacology, University of Lagos, Lagos, Nigeria

DESCRIPTION

End-Stage Renal Disease (ESRD) is frequently brought on by Glomerulonephritis (GN), which is defined by immune-mediated inflammatory alterations in the glomerular. All cases of glomerulonephritis can be treated with symptomatic measures and methods to stop the disease's progression. The limited capacity of renal tissue to regenerate after injury and the uncontrolled pathological process by current treatments have prompted researchers to develop novel interventions. Stem cell-based therapy has emerged as one such intervention because of its capacity to reduce inflammation and foster regeneration. Different stem cell populations can minimize glomerular damage and improve renal function, according to a number of scientific and clinical studies. But there is still a long way to go before stem cell-based therapy is used in clinical settings.

In this study, we review previous research on the use of stem cells from various origins in GN and address potential treatment effects, prospective therapeutic mechanisms, and potential clinical obstacles. A diverse range of clinical disorders known as Glomerulonephritis (GN) are characterised by secondary tubulointerstitial and vascular alterations together with secondary glomerular inflammation, though this is not always the case. Both primary illnesses and subsequent symptoms of systemic diseases are possible for these conditions, which are believed to have an immune-mediated aetiology. End-Stage Renal Disease (ESRD) is frequently brought on by GN, particularly in developing nations like China and India. The growing health burden brought on by chronic renal disease is largely due to GN. Therefore, from an economic standpoint, it is crucial to deploy policies that have been proven to be successful in reducing the advancement of GN more widely. Treatment for symptoms and methods to halt the progression of glomerulonephritis are the main therapeutic options that apply to all cases. It has been demonstrated that treatment measures benefit from routine clinical monitoring, blood pressure regulation, and the use of an AChE inhibitor. Corticosteroids and cytotoxic medications are two common immunosuppressive treatments for GN that have been in use since the 1950s. Due to their capacity to inhibit nuclear factor-B activity and, as a result, the proinflammatory effects of cytokines known to actively promote glomerular inflammation, such as Interleukin 1 (IL-1), Tumour Necrosis Factor (TNF-), corticosteroids are effective in treating a variety of glomerulonephritis types. However, other corticosteroid actions lead to well-known adverse effects that reduce the effectiveness of these medications. The immunosuppressive treatments for GN that are now being utilised are typically linked to substantial side effects and are not always successful. New treatments that could control inflammation, lessen harm, aid in kidney regeneration, and be less toxic have been the subject of studies in both patients and animal models. Undifferentiated cells known as Stem Cells (SCs) have the capacity for multi-line age differentiation and self-renewal. In addition to being safe and successful in a variety of immunomediated disorders, stem cell-based therapies have the potential to treat many human diseases, including kidney disease. However, all other stem cell-based therapies remained in the experimental stage of medical research, with the exception of Haematopoietic Stem Cell (HSC) transplantation for the treatment of haematological disorders and some dermal and corneal indications. Patients who are desperate for a cure for their illnesses would instead choose stem cell-based therapies. The rapidly developing field of regenerative medicine is supported by several studies, including preclinical and animal research. Potentially, a unique therapeutic strategy for GN could be created using stem cell-based therapy. Numerous preclinical and clinical investigations carried out over the past 14 years have demonstrated that different stem cell types can treat GN. This paper's goal is to critically evaluate the research done on the use of stem/progenitor cells in GN at both the experimental and clinical levels. It also discusses the mechanism underlying the positive effects of SCs and their potential to be applied in therapeutic strategies for GN applications in clinical settings.

CONCLUSION

In individuals with GN, stem cell-based therapy seems to be a safe treatment option. Even while the majority of research on GN and stem cell-based therapy demonstrates impressive results, it is largely done on tiny animals, and the clinical trials are only case reports. But never before has a breakthrough therapy moved from preclinical models to people with such speed. The best cell type, dose, time, and route of administration should be figured out before using stem cell treatment in clinical settings. We also need to move forward with rigorous, carefully planned, sizable, randomized clinical studies. Stem cell-based therapy, in our opinion, is most likely to become a clinical reality and change the treatment of GN.

Correspondence to: Dave Obi, Department Of Pharmacology, University of Lagos, Lagos, Nigeria, E-mail: Daveobi215@gmail.com

Received: 16-Nov-2022,Manuscript No. JCEST-22-19532; **Editor assigned:** 21-Nov-2022,PreQC No. JCEST-22-19532 (PQ); **Reviewed:** 05-Dec-2022,QC No. JCEST-22-19532; **Revised:** 12-Dec-2022, Manuscript No. JCEST-22-19532 (R);**Published:** 19-Dec-2022, DOI: 10.35248/2157-7013.22.S15.393

Citation: Obi D (2022) Significance of Stem Cell based Therapies in Transplantation. J Cell Sci Therapy. S15:393.