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Emerging Drugs for the Treatment of Diseases

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DESCRIPTION

For decades, Anti-Tumor Necrosis Factor (TNF) have been the mainstay therapy for Crohn's Disease (CD) and Ulcerative Colitis (UC). With the growing need for highly effective therapy, various therapeutic targets have been introduced, including Anti-Integrins, Anti-Interleukin (IL) 12/23, selective anti-IL23, Janus Kinase (JAK) inhibitors, Sphingosine-1-Phosphate (S1P) receptor modulators, and mRNA-124 splicing agents. Choosing and sequencing the Inflammatory Bowel Disease (IBD) therapies remains a clinical challenge. When considering treatment options, the disease phenotype, severity of symptoms, patient comorbidities, and prior drug exposure should all be taken into account. Anti-TNF therapy has been shown to be effective in both UC and CD. The perception that newer biologics have a slower onset of action is likely exaggerated, and providers should reconsider the need for concurrent corticosteroid therapy. JAK inhibitors provide rapid symptom relief in patients with moderate-to-severe UC. Because of safety concerns, it is only recommended as a second-line therapy for UC. IBD treatment should be personalised, have a quick onset of action, induce long-term clinical and endoscopic remission, and be extremely safe.

Vaccines and antiviral drugs are the mainstays for preventing and treating influenza. However, because of viral resistance, approved M2 ion channel inhibitors, neuraminidase inhibitors, polymerase inhibitors, and vaccines cannot meet therapeutic needs. Thus, discovering new targets for the virus or host, as well as developing more effective inhibitors, are critical in protecting humans from the influenza virus. Vaccines are the most effective method of preventing influenza virus infection, and recombinant protein vaccines show promise in the development of next-generation vaccines. Future research directions for anti-influenza virus drugs include compounds targeting the viral components RNA polymerase, hemagglutinin, and nucleoprotein, as well as the modification of trusted neuraminidase inhibitors. Furthermore, some host factors influence virus replication *in vivo*, which can be used to create antiviral drugs.

As the prevalence of diabetes rises in the general population, diabetic nephropathy continues to impose a significant economic and social burden on both individual patients and health-care systems. The complicated pathophysiology of diabetic kidney disease makes it difficult in developing the effective medical treatments. However, the various aspects of diabetic nephropathy offer a variety of potential treatment strategies. For many years, RAAS blockers have been the mainstay of therapy for DM nephropathy, with only recent advances with SGLT2 inhibitors and nonsteroidal MRAs. Our approach to the treatment of diabetic nephropathy has evolved as we have gained a better understanding of the long-term renal effects of ambient hyperglycemia, which range from hemodynamic changes to increased production of oxidative and pro-inflammatory substances. The medical community may be able to alleviate the burden of diabetic kidney disease by continuing to research new therapeutics as well as combination therapy.

Diabetic nephropathy is the leading cause of end-stage renal disease in many countries. There are several targets for preventing the progression of kidney disease and attenuating disease-specific pathophysiology, including hemodynamic effects, anti-hyperglycemic effects, oxidative stress, and pro-inflammatory cytokines/chemokines. Although several agents are being studied, only a few have FDA approval for the treatment of diabetic nephropathy, and only a few have supporting data from large trials.

Finerenone, semaglutide, liraglutide, DPP4 inhibitors, and the NRF2 translocator bardoxolone are among the most notable emerging drugs with data from large trials to date. There are several promising new agents in development, primarily targeting oxidative stress and proinflammatory cytokines/chemokines, which have shown significant results in murine studies and may provide new treatment options for diabetic nephropathy in the future.