New Challenges for Precision Medicine on Inflammation and Immune Disease

Inflammation is a defense response of the body to stimuli, manifested as redness, swelling, heat, pain and dysfunction. Inflammation may be infectious caused by infection, or it may not be a non-infectious infection caused by infection. In general, inflammation is the body’s automatic defense response. Despite many efforts have been made to explore the treatment and mechanisms of inflammation and related, persistent gaps do exist between research and clinical application. For example, it is still unknown the causal relationship of the regulation between inflammation and immune responds.

There are four interesting papers in this special issue that cover neuromyelitis optica spectrum disorder, diabetic, neuropathic pain and intracranial hemorrhage.

Neuromyelitis optica spectrum disorder (NMOSD) is an acute or subacute demyelinating disease that mainly affects the optic nerve and spinal cord. Xu et al. summarized the pathogenesis and mechanisms of NMOSD. Besides, they also introduced potential medical treatments for NMOSD, especially focusing on some novel drugs [1].

Diabetes is a chronic metabolic disease that is a serious threat to human health and quality of life, caused by insulin resistance and insufficient insulin secretion. Although many efforts have been made against diabetes, so far, there is still a gap for effective prevention and treatment. With the development of artificial intelligence techniques, machine learning approaches have been widely used in the drug field. In this collection, Sooranna and Lu et al. summarized the application of machine learning algorithms in drug design for anti-diabetes drugs. In this article, the brief theory of different machine learning methods was introduced and the applications of machine learning in diabetes drugs design based on lead compounds [2].

Neuropathic pain is a chronic pain derived from somatosensory nervous system, which causes the patients huge discomfort. Currently, nervous system is regarded as target for the main treatment of neuropathic pain, although the limited therapeutic effect. In this collection, Lu and Yu et al. review the role of SIRT1 in neuropathic pain from the viewpoint of neuroimmunity [3].

Intracranial hemorrhage is a high disability rate and high mortality rate which caused by cardiovascular and cerebrovascular abnormalities. Correct diagnosis can reduce misdiagnosis, which leads to the actual clinical practice. Liu and Zheng et al. applied ResNet-18 and DenseNet-121 deep learning to identifying five subtypes and normal images in non-contrast enhancement CT of intracranial hemorrhage. As a result, the prediction model achieved high prediction accuracy of ResNet-18 and DenseNet-121 with 89.64% and 82.5%, respectively. This study suggested that deep learning model can be considered as a supplemental for accurate identification of intracranial hemorrhage in the future [4].

REFERENCES

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