CHAPTER 1

Introduction of Neuropharmacology

The study of known endogenous and exogenous chemical agents' effects on the neurobiological processes in the mammalian nervous system is known as neuropharmacology. The most significant physiological feature that distinguishes humans from other animals is brain function. Pharmacological intervention is a crucial component in treating brain function disorders, which are a serious concern for human society. These disorders can arise from primary or secondary malfunctions of other systems. Neuroactive substances can be hormones, enzymes, or neurotransmitters in their natural condition. In a clinical context, a neuroactive agent is a drug a term with widespread usage but often ambiguous definitions. The endocrine system uses changes in blood-borne hormone levels to communicate with specific tissues. On the other hand, the nervous system influences behaviour by quickly sending electrical impulses along nerve fibres that end at effector cells, which react only when neuromodulator substances are released. Medications that mimic or change the functions in order to achieve their main therapeutic impact. The basic physiology of the nervous system is explained, along with the function of neurotransmitters in the transmission of messages between intracellular chemical changes and extracellular events. There are two distinct parts to the nervous system: the peripheral nervous system, which consists of neurons outside the brain and spinal cord, or any nerves that enter or leave the central nervous system (CNS), and the central nervous system (CNS), which is made up of the brain and spinal cord.

The peripheral nervous system is divided into two parts: the efferent division, which transports signals from the brain and spinal cord to peripheral tissues, and the afferent division, which transports information from the periphery to the CNS. Afferent neurons give sensory input to influence the function of the efferent division via reflex arcs, which are neuronal circuits that mediate a reflex action. The efferent component of the peripheral nervous system is further divided into two major functional subdivisions: somatic and autonomic systems. Somatic efferent neurons

have a role in the voluntary control of processes like skeletal muscle contraction, which is required for locomotion. Conversely, the autonomic system controls everyday needs for essential body processes without conscious mental intervention. It is made up of efferent neurons that innervate the exocrine glands, as well as the vascular and smooth muscles of the viscera cardiac muscle. This allows it to regulate blood flow, digestion, cardiac output, and glandular secretions.

The difficulty of comprehending how medications affect the central nervous system (CNS) is particularly difficult for two reasons. The first is that medications with core actions are particularly important to humanity. They are the drugs that people most frequently give themselves for non-medical purposes (e.g., alcohol, tea and coffee, cannabis, nicotine, opiates, amphetamines, and so on). They are also of great therapeutic importance. The second reason is that comprehending the effects of drugs is significantly more challenging since the central nervous system (CNS) is functionally far more complicated than any other system in the body.