Normal Cells of the CNS

Neurons

Cell Body (Perikaryon)

1. Nucleus:
- a. Single
- b. Usually central
- c. Rounded
- d. Vesicular with prominent nucleolus

2. Cytoplasm
- a. Nissl bodies
- b. Neurofilaments
- c. Microtubles
- d. Golgi apparatus
- e. Mitochondria
- f. Centriole
- g. Some fat and granules
- h. Pigments

Processes:
- a. An axon
- b. Dendrites

1. Unipolar (Pseudounipolar) Neuron
- 1. Rounded Neuron
- 2. One process that divides into 2 branches:

One acts as a dendrite & the other as an axon.

EXAMPLE:
- a. Mesencephalic nucleus of trigeminal nerve
- b. Dorsal root ganglion

2. Bipolar Neuron
- 1. Spindle Shaped
- 2. Two processes:

One arising from each pole of the cell body

EXAMPLE:
- a. Retina
- b. Olfactory Epithelium

3. Multipolar Neuron
- 1. One axon & multiple dendrites
- 2. It has **3** types:

1. Stellate Neuron
- a. The most common type
- b. Distributed in most areas of CNS

EXAMPLE:

Anterior horn cells of the spinal cord

2. Pyramidal Neurons
- a. Distributed in motor area 4 of the cerebral cortex

3. Pyriform Neurons
- a. Pear Shaped

EXAMPLE:

Purkinje cells of cerebellar cortex

Types of nerve fibers in CNS
- a. Unmyelinated without neurilemmal sheath (Grey matter)
- b. Myelinated without neurilemmal sheath (White matter)

Neuroglia

Group of cells that act as the supportive tissue of CNS

TYPES:

1. Astrocytes
- a. They are the most common type
- b. Star shaped cells with numerous long processes

Functions:
- 1. Repair injury of CNS tissue (gliosis)
- 2. Supportive & nutritive functions to nuerons
- 3. Participate in the formation of BBB

2 Types:

1. Protoplasmic Astrocytes
- Found in the Grey matter of CNS
- Their processes branch extensively

2. Fibrous Astrocytes
- Are found in the White matter of CNS
- Their processes have fewer branches put together

2. Oligodendrocytes
- a. Branching cells with few, short processes
- b. Distributed in the grey & white matter of CNS

Functions:
- 1. Formation of myelin sheath in the CNS
- 2. Insulation of nerve fibers

3. Microglia
- a. Spindle shaped cells with branching process raising from each pole of the cell
- b. Distributed in the grey & white matter
- c. Rich in Lysosomes

Functions:
- 1. Phagocytosis

4. Ependymal Cells

Simple columnar epithelial cells (partially ciliated) lining the brain ventricles and the central canal of spinal cord

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