PHARMACOLOGY TEAM

Lecture : 1

Neurotransmitters

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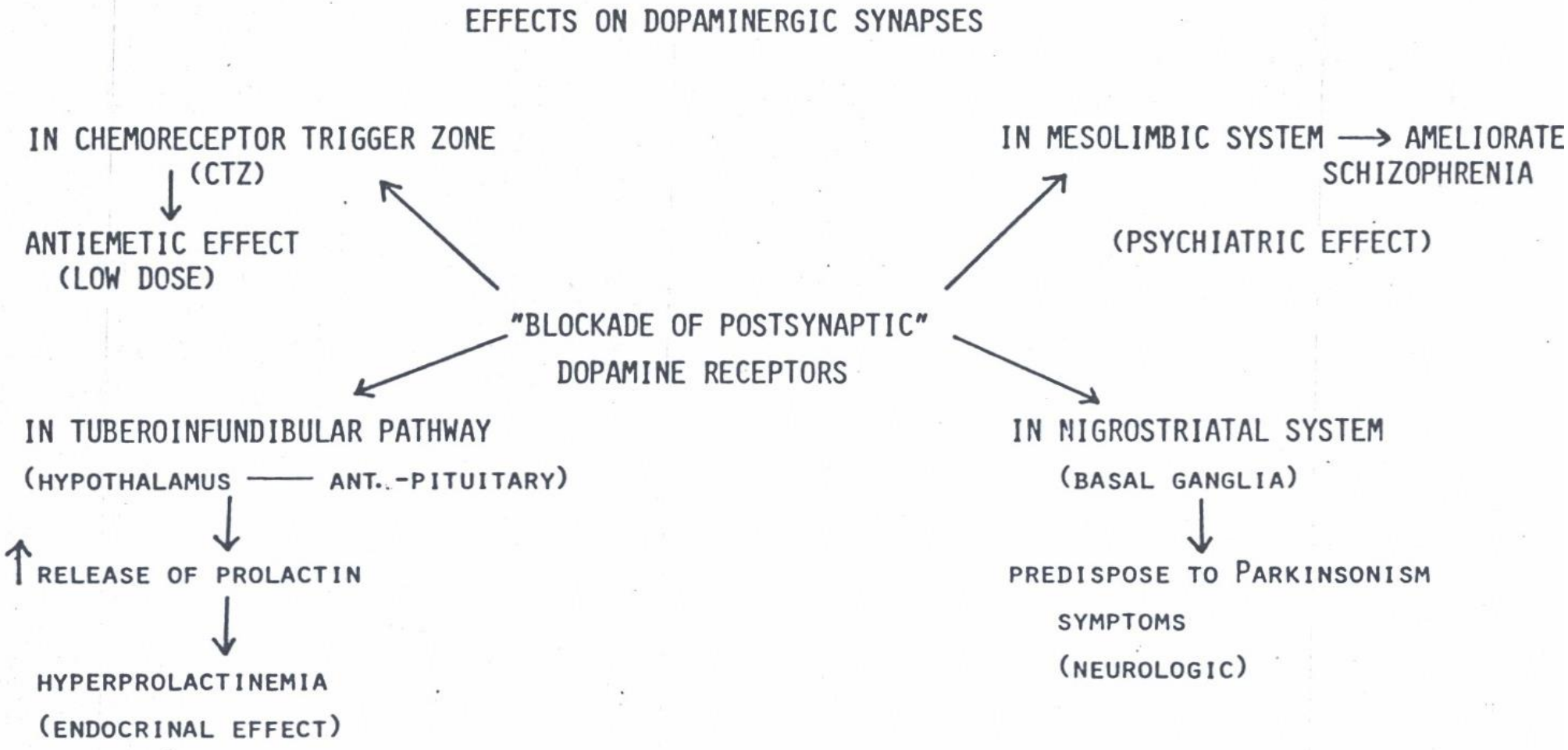
Types Of Neurotransmitters

Amino acid	• **Glutamate , GABA**
Monoamines & other biogenic amines	• **Dopamine, Norepinephrine, Serotonin**
Peptides	• **Somatostatin**
Others	• **Acetylcholine**

General Notes

- Norepinephrine (NE): Found in central and peripheral systems
- Most of CNS diseases take long time to be treated.
- Decreasing of both Norepinephrine and Serotonin will cause Depression.
- Changing in the levels of Serotonin ,Dopamine and Ach sometimes cause Schizophrenia
- Glutamic acid is the most important excitatory neurotransmitter
- amnesia is loss of recent memory
- Ameliorate = treatment
  - If dopamine increased in mesolimbic system >> schizophrenia
  - If dopa is blocked in basal ganglia >> parkinsonism (it's one of the side effects of schizophrenia's drugs)
  - hyperprolactinemia (Amenorrhea, false pregnancy)
  - Antiemetic effect (stop vomiting)

These 4 areas are most affected to dopamine



THE SAME PHARMACODYNAMIC ACTION MAY HAVE DISTINCT PSYCHIATRIC "NEUROLOGIC" AND ENDOCRINE EFFECTS.

SUMMARY

neurotransmitters	Norepinephrine (NE)		Serotonin (5HT)
function	Neurotransmissions		1. Mood control 2. Regulation of sleep 3. Pain perception
Diseases	Affective Disorders		
	Mania with High level of NE	Depression with low level of NE	1. Schizophrenia 2. Obsessive Compulsive Disorders 3. Generalized Anxiety 4. Nausea and Vomiting (Treated by 5-HT3 antagonists) 5. Depression 6. Social phobia
Treatment	reserpine Clonidine Mehtyldopa	amphetamine	

SUMMARY

Neurotransmitters	Acetylcholine (ACH)	Glutamic acid	GABA	Dopamine
function	1. memory 2. arousal 3. attention	Excitatory	Inhibitory	
Diseases	1. Alzheimer's disease 2. Parkinson's disease 3. Amnesia caused by hyoscine 4. Shizophrenia 5. Depression	Increased level predispose to: Epilepsy	Decreased level predispose to: 1. Epilepsy 2. Anxiety 3. Convulsions 4. Insomnia	1. Schizophrenia 2. Parkinson Disease 3. Nausea and Vomiting 4. Infertility

QUESTIONS

1. **Which one of the following neurotransmitters is Amino Acid?**
   - A. **Ach**
   - B. **GABA**
   - C. **Dopamine**
   - D. **Serotonin**
2. **Blocking of postsynaptic Dopamine receptors in Nigrostriatal system causes?**
   - A. **Ameliorate Schizophrenia**
   - B. **Depression**
   - C. **Parkinson's like disease**
   - D. **Alzheimer's disease**

Answers:

1. B
2. C

THE END

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