


Anti EPS & Antiparkinsonian Drugs

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NORMAL EXTRAPYRAMIDAL SYSTEM

- ☐ Normal coordination of involuntary movement
- ☐ Involuntary movement supports voluntary...
- ☐ Balance of two neurotransmitters, acetylcholine (ACh) and dopamine (DA), is required for...



PARKINSON'S DISEASE AND EXTRAPYRAMIDAL SIDE EFFECTS

Parkinson's disease (PD): progressive, chronic, degenerative with unknown cause

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

**PARKINSON'S DISEASE AND
EXTRAPYRAMIDAL SIDE EFFECTS
(Cont.)**

Associated symptoms of PD

- 1
- 2
- 3
- 4
- 5
- 6
- 7

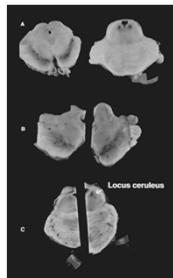
**PARKINSON'S DISEASE AND
EXTRAPYRAMIDAL SIDE EFFECTS
(Cont.)**

- ☐ Pigmented neurons of the substantia nigra lose their pigmentation and decline...
- ☐ Decrease in dopamine transmission to the basal ganglia results in an...

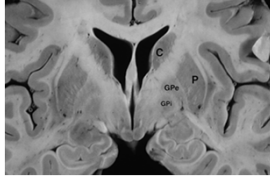
**EFFECTS OF AGING AND DISEASE ON
CATECHOLAMINE CENTERS IN THE
BRAINSTEM**

A, Normal pigmentation in the substantia nigra (*left*) and locus ceruleus (*right*) of a young person. B and C, *Left*, significant loss of pigment in midbrain and pons in Parkinson's disease; *right*, mild age-related loss of pigment in normal individual.

Courtesy of Dr. Richard E. Powers, Director, University of Alabama at Birmingham, Brain Resource Program. (From Keltner NL, Folks DG, Palmer CA, et al.: *Psychobiological foundations of psychiatric care*, St. Louis, 1998, Mosby.)



APPEARANCE OF BASAL GANGLIA



C, Caudate nucleus; GPe, globus pallidus externa; GPi, globus pallidus interna; P, putamen.

Courtesy of Dr. Richard E. Powers, Director, University of Alabama at Birmingham, Brain Resource Program.
(From Keltner NL, Folks DG, Palmer CA, et al.: *Psychobiological foundations of psychiatric care*, St. Louis, 1998, Mosby.)

EXTRAPYRAMIDAL SIDE EFFECTS AND PARKINSON'S DISEASE

Extrapyramidal side effects (EPSE) caused by an...

PD: imbalance related to neurodegeneration of the substantia nigra at the beginning of...

EPSE: blockage of dopamine receptors in the basal ganglia at the end of the...

EXTRAPYRAMIDAL SIDE EFFECTS AND PARKINSON'S DISEASE (Cont.)

PD: Tx antiparkinsonian agents that increase dopamine levels:

EPSE: treated with...

Psychosis is thought to be related to an increase in...

To give a drug, such as levodopa, that increases dopamine could cause...

**SPECIFIC EXTRAPYRAMIDAL
SIDE EFFECTS**

Akathisia

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

**SPECIFIC EXTRAPYRAMIDAL
SIDE EFFECTS (Cont.)**

Akinesia

- 1
- 2
- 3
- 4
- 5
- 6

**SPECIFIC EXTRAPYRAMIDAL
SIDE EFFECTS (Cont.)**

▣ Dystonia

- 1
- 2
- 3
- 4
- 5

CASE STUDY

- ▣ A patient has just begun to take haloperidol (Haldol) 5 mg BID for a first episode of schizophrenia. He was brought to the Emergency Department with sustained twisted positioning of his neck and mouth. His words are garbled, and his eyes are moving upward.
- ▣ What side effect of haloperidol is this patient experiencing?
- ▣ What are the symptoms?
- ▣ What treatment would the nurse anticipate?

TYPES OF DYSTONIA

Torticollis:

Oculogyric crisis:

Laryngospasm:

Give...

1

2

3

Offer...

SPECIFIC EXTRAPYRAMIDAL SIDE EFFECTS (Cont.)

Drug-induced parkinsonism

1

2

3

4

5

- Develops...
- Assess and report.
- Obtain order for...

**SPECIFIC EXTRAPYRAMIDAL
SIDE EFFECTS (Cont.)**

Tardive dyskinesia

Caused by long-term use of...

Late-appearing...

- 1
- 2
- 3
- 4

**SPECIFIC EXTRAPYRAMIDAL SIDE
EFFECTS (Cont.)**

Tardive dyskinesia

- 1. Worsens with anticholinergics because it is not...

- 2
- 3
- 4
- 5

**NEUROLEPTIC MALIGNANT
SYNDROME**

Potentially lethal

- 1
- 2
- 3

Treated with

- 1
- 2
- 3
- Routinely take temperature, assess for...

CASE STUDY

- ▣ An elderly man was brought to the Emergency Department with a fever of 103° F, confused, with muscle rigidity, and changes in his vital signs. He has been taking fluphenazine (Prolixin) 10 mg BID for schizophrenia. His daughter stated that her father had been experiencing some paranoid ideation and reduced his food and fluid intake unless the food or beverage was in a sealed container.
- ▣ What suspected side effect was this patient experiencing? What symptoms led to your conclusion?

HIGH RISK FOR EXTRAPYRAMIDAL SIDE EFFECTS

- 1
- 2
- 3
- 4

ANTICHOLINERGIC DRUG DOSAGES FOR EPSE

- ▣ Benztropine (Cogentin) 1-4 mg PO or IM one to twice a day
- ▣ Acute dystonic reactions: 1-2 mg IM/IV, then 1-2 mg PO BID
- ▣ Trihexyphenidyl (Artane): Start 1 mg daily, increase to usual dosage range, 5-15 mg/day

PHARMACOLOGIC EFFECTS

Anticholinergic drugs block acetylcholine receptors.

Anticholinergics are used alone in treatment of EPSE.

Antipsychotic drugs block dopamine receptors, causing EPSE.

Blockage of dopamine receptors in basal ganglia produces EPSE.

High-potency antipsychotic haloperidol (Haldol) causes more EPSE.

SIDE EFFECTS OF ANTICHOLINERGICS

Central nervous system effects

- 1
- 2
- 3
- 4
- 5
- 6
- 7

SIDE EFFECTS OF ANTICHOLINERGICS (Cont.)

Peripheral nervous system (PNS) side effects

- 1
- 2
- 3
- 4
- 5
- 6

RISKS ASSOCIATED WITH ANTICHOLINERGIC USE

- ☐ Might be lethal...
- ☐ Might induce dependence
- ☐ Might exacerbate...
- ☐ Might induce...
- ☐ Might cause erectile dysfunction
- ☐ Might cause...

NURSING IMPLICATIONS: ANTICHOLINERGIC DRUGS

Overdose can result in CNS hyperstimulation:

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

Overdose can result in CNS depression:

- ☐ 1
- ☐ 2
- ☐ 3

Use cautiously during pregnancy.

Older individuals have more...

NURSING IMPLICATIONS: ANTICHOLINERGIC DRUGS (Cont.)

Alert the patient to using over the counter drugs and other prescription drugs that intensify the atropine-like effects of anticholinergics.

- ☐ Interactions: intensification of sedative effects when combined with CNS depressants
- ☐ Decrease in absorption when using antacids and antidiarrheal drugs

TEACHING PATIENTS

- 1
- 2
- 3
- 4
- 5
- 6

OTHER TREATMENT OPTIONS FOR EPSE

Dopamine agonist:

Beta blocker:

Benzodiazepine:

Vitamins E and B may diminish symptoms associated with...

EPSE PREVENTION

Establish whether patient is from high-risk group

- 1
- 2
- 3
- 4

Obtain baseline information about EPSEs ...

Choose drug with lower risk for EPSEs

- High risk:
- Lower risk:

EPSE PREVENTION (Cont.)

- ☐ Monitor patient regularly
- ☐ If EPSEs develop
 - Switch to atypical agent
 - If on atypical agent, lower dose; switch to atypical agent with better side effect profile; add antiparkinsonian agent.
