

Parkinson's disease (PD)

The efficacy of nicotine in decreasing incidence, symptom severity, and mortality in Parkinson's disease patients

Sara Schneiders PA-SII

Background

Types/Etiology of PD:

1. Primary: idiopathic
 - risk increases as age advances
2. Secondary Parkinsonism
 - encephalitis, drugs

- Incidence: ~ 1/1,000
- M>F
- Onset most often between ages 58-62

Definition

- PD is a neurodegenerative disease which results in loss of dopaminergic neurons in the substantia nigra =>decreased dopamine in corpus striatum-> movement disorders
- With Ach, dopamine regulates skeletal muscle activity, hypothalamic function, and neuroendocrine activities

Four diagnostic criteria

- Asymmetrical peripheral tremor, most often at rest
- Muscular rigidity
- Bradykinesia (slowing of movements)
- Postural instability

Clinical presentations:

- Shuffling gait
- Cogwheel rigidity
- Pillrolling
- Expressionless face

Other clinical features of PD

- Depression
- RLS
- Seborrheic dermatitis
- Dementia (in ~ 10% of cases)
- Constipation
- Dry eyes

Treatment options

- Anticholinergics
- Levadopa, carbidopa
- Peripheral decarboxylase inhibitors
- MAO-B inhibitors (ie. Selegiline)
- NMDA receptor antagonists
- COMT inhibitors

Treatment outcomes

- All treatments are only palliative
- All treatments have side effects
- PD is progressive and irreversible

RR for PD, by smoking status

	Never smoker	Ever smoker	Former smoker	Current smoker
Thacker	1		*.78	*.27
Hernan	1		.6	.4
Checkoway	1	.5	.6	.3
Tzourio	1	*.4		
Hancock	1	.56	.70	.3
Hellenbrand	1	.5	.85	.2
Paganini-Hill	1		.92	.42

*In Thacker & Tzourio's studies, risk of PD was significantly lower for smokers than never smokers only through age 74. At age 75+, this trend was not seen.

Study Conclusions

- PD risk decreased: as number of smoking years increased, as amount increased, and as years since quitting smoking decreased.
- No effect of smoking on age of PD onset.
- Limited data on symptom reduction-no effect found.
- No clear association between mortality and nicotine use in PD patients.

Clinical pearls

- PD is always progressive.
- The efficacy of PD drugs declines over time- drugs should be delayed until symptoms become severe.
- The risks of tobacco use far outweigh the proposed benefit of decreasing PD risk.

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