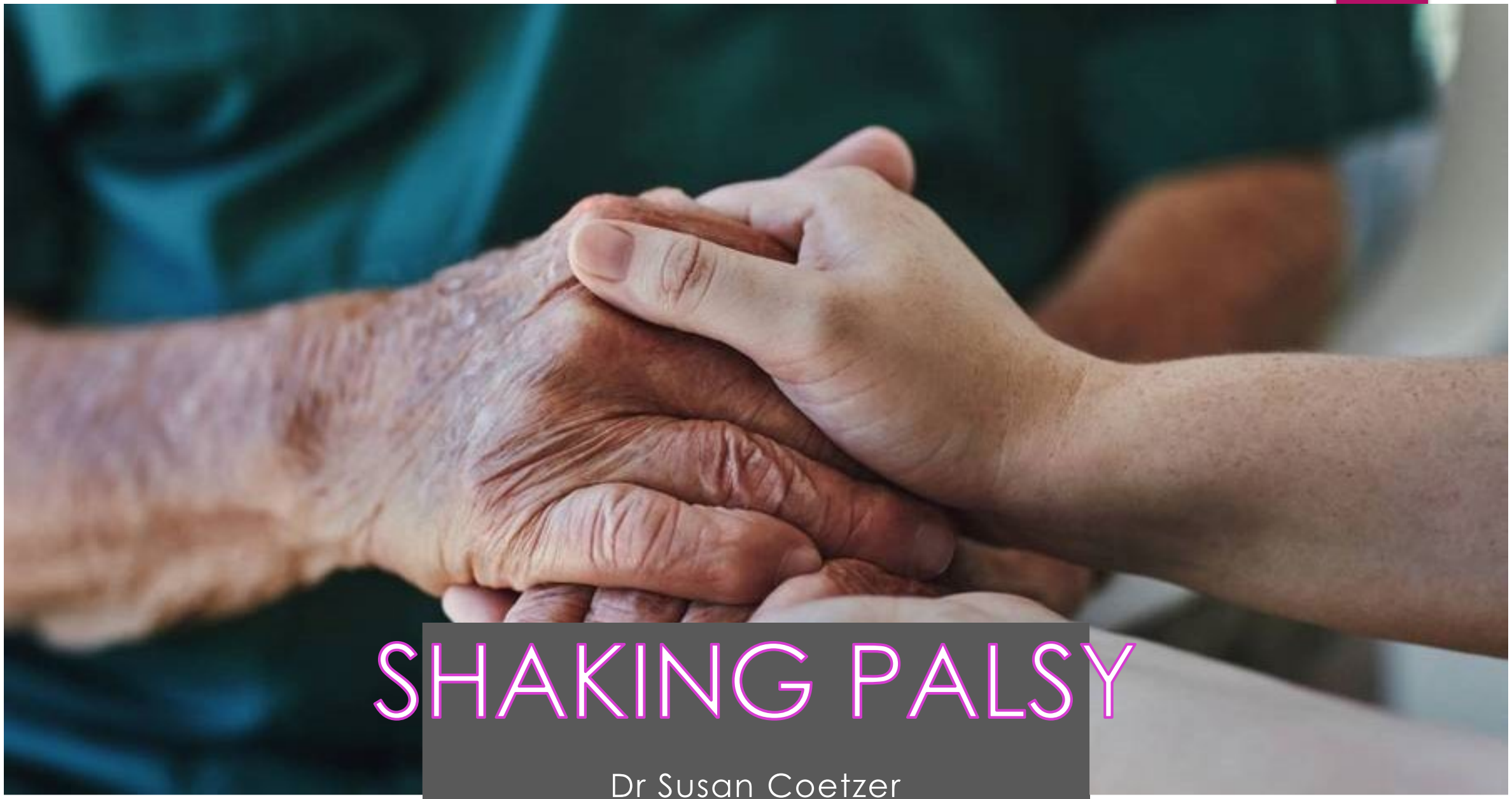
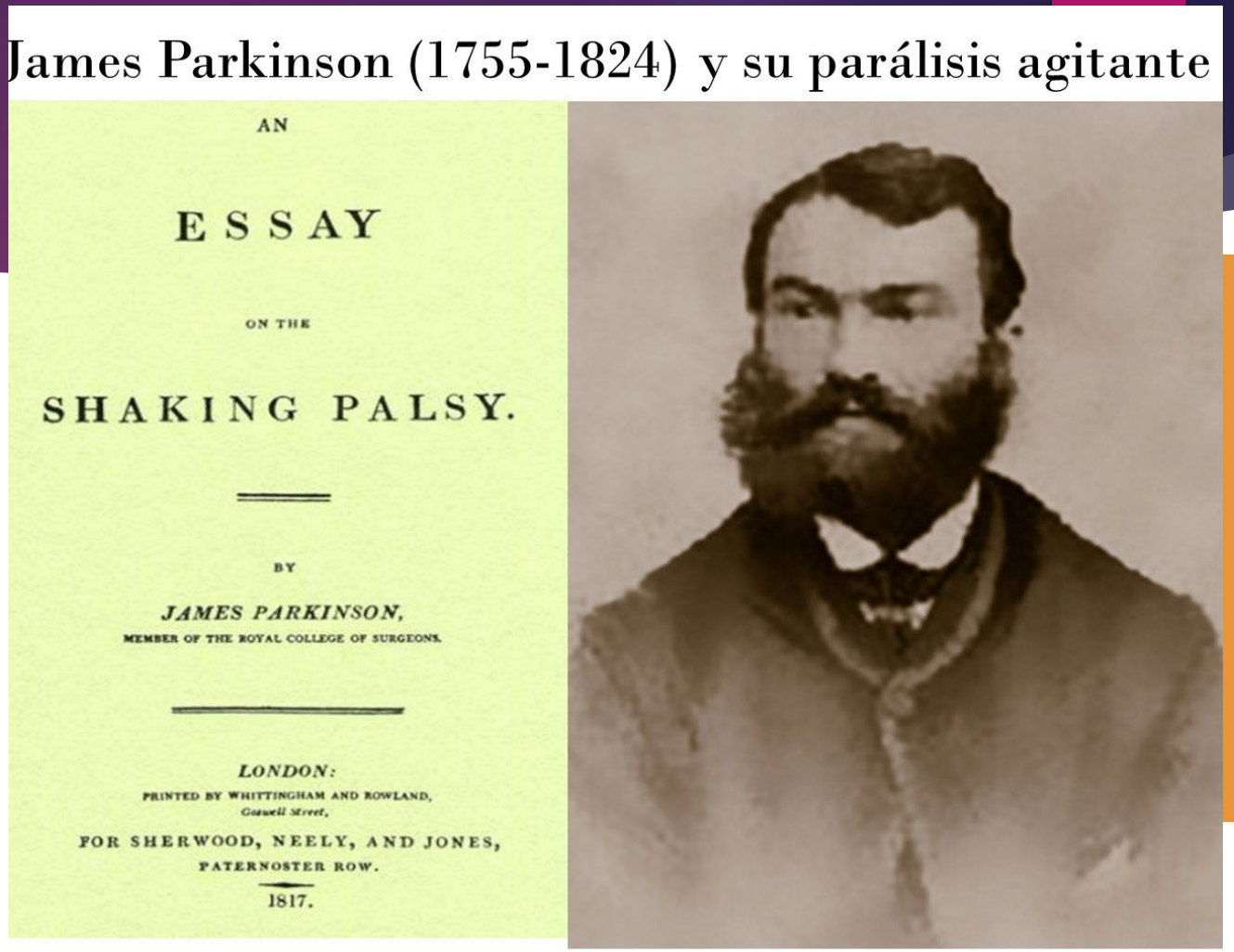


SHAKING PALSY

Dr Susan Coetzer

Parkinson's disease

- Agenda:
  - General information – who, what, where, why
  - Cardinal features
  - Other symptoms
  - What else could it be…
  - Treatment
  - Closing



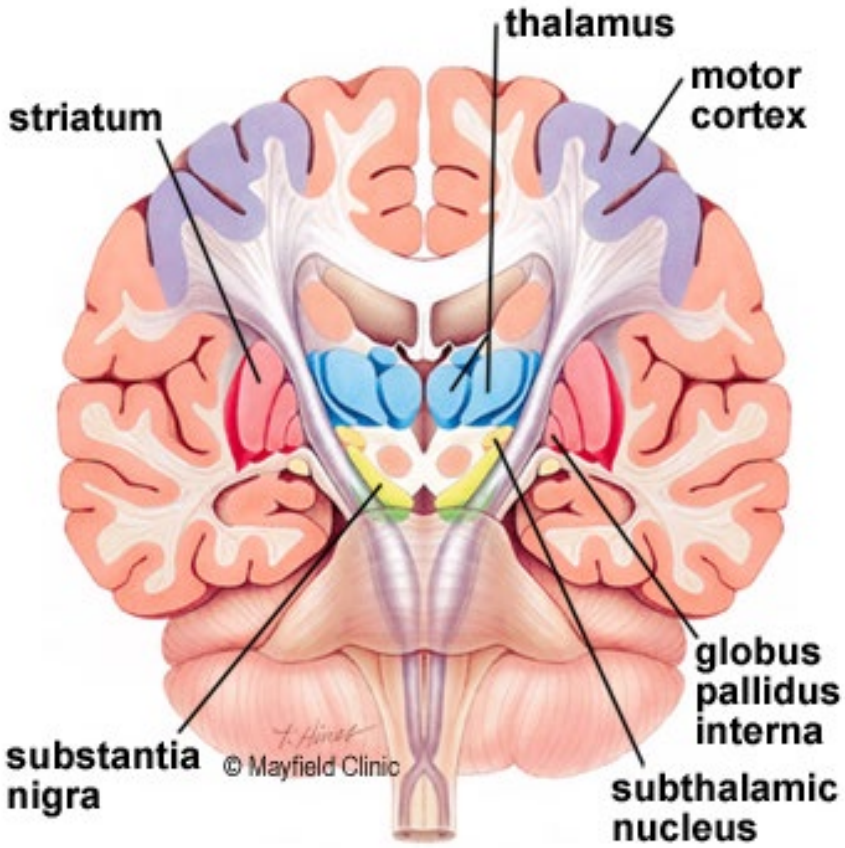
Introduction to Parkinson's

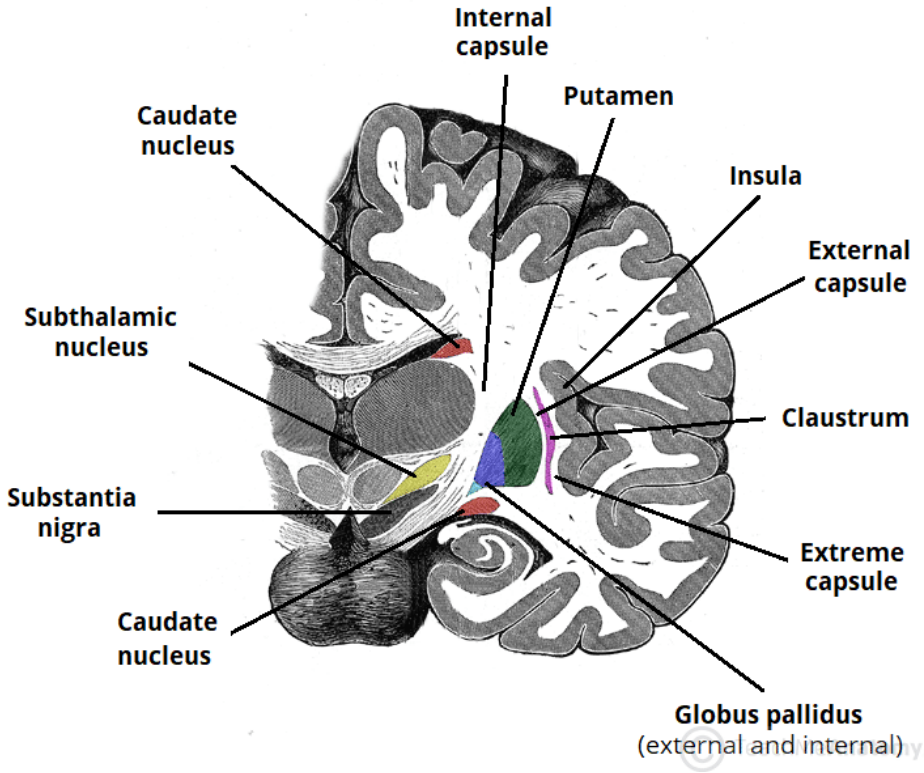
WHO?
Older adults
Genetic usually younger (<10%)
Males >females

WHAT?
Degeneration of dopamine-producing neurons in the basal ganglia and substantia nigra
Degeneration of other neurotransmitters

WHY?
Environmental exposures like pesticides, air pollution
Comorbidities like obesity, diabetes, previous brain injury

PROTECTIVE FACTORS
Smoking
Caffeine
Exercise
Statins
Ibuprofen and other drugs


thalamus
motor cortex
striatum
globus pallidus interna
substantia nigra
subthalamic nucleus
© Mayfield Clinic


Internal capsule
Putamen
Caudate nucleus
Insula
External capsule
Subthalamic nucleus
Claustrum
Substantia nigra
Extreme capsule
Caudate nucleus
Globus pallidus
(external and internal)

CARDINAL FEATURES

TREMOR (70-80%)

- Unilateral
- At rest
- Pill-rolling (4-5Hz)

RIGIDITY (STIFFNESS) (75-90%)

- Increased resistance to passive movement in a joint

BRADYKINESIA (SLOWNESS) (80%)

- Slow and decreased amplitude of movements

POSTURAL INSTABILITY

- Decreased ability to prevent falling
- Stooped posture
- Later in the course

TREMOR

PARKINSON'S

- One side
- At rest
- Worsens with mental tasks

OTHER CONDITIONS LIKE ESSENTIAL TREMOR

- Often both sides
- Worse with movement (intention)
- Can be reduced with mental tasks
- Often head involved

OTHER FEATURES

- Motoric
  - Masked facial expression (hypomimia)
  - Decreased spontaneous eye blink rate
  - Speech impairment and swallowing impairment and increased saliva
  - Visual impairment (eye muscles)
  - Small handwriting
  - Pisa syndrome

GAIT IN PARKINSONS

- Shuffling, short stepped
- Freezing
- Festination (picking up speed)

NONMOTOR SYMPTOMS (97%)

Cognitive dysfunction and dementia *
Psychotic symptoms *
Mood disorders (incl depression, anxiety, apathy)
Sleep disturbances *
Fatigue
Autonomic dysfunction *
Olfactory dysfunction
Pain and sensory disturbances
Dermatologic findings

COGNITIVE DYSFUNCTION AND DEMENTIA

Prevalence increases as the duration of PD increases

Early more executive and visuospatial impairment

Later more memory

Lewy Body Dementia watch this space

Hallucinations and delusions

- High doses of antiparkinson's drugs
- Dementia
- Advanced age
- Visual disturbance
- Sleep disorders
- Multiple other illnesses
- Longer disease duration

SLEEP DISTURBANCES

- Insomnia
- Restless legs syndrome
- Periodic limb movements of sleep
- REM sleep behaviour disorder (dream enactment because of loss of normal muscle paralysis during REM sleep)
- Excessive daytime sleepiness

AUTONOMIC DYSFUNCTION

- Orthostatic hypotension (sudden drops in blood pressure with changes in position)
- Urinary dysfunction
- Constipation
- Sexual dysfunction
- Increased sweating

DISEASE PROGRESSION AND PROGNOSIS

- Neurodegenerative – shortens life expectancy
- HOWEVER HIGHLY VARIABLE PROGRESSION
- Disability usually 3 - 7 years after diagnosis
- Life expectancy 6 -22 years (lower life expectancy with advanced age and dementia)

WHAT ELSE COULD IT BE…

Other tremor disorders (essential tremor)

Other parkinsonian disorders ("Parkinson's plus syndromes")

- Multiple system atrophy
- Progressive supranuclear palsy
- Corticobasal degeneration

Secondary parkinsonism (vascular / drugs/ toxins / structural pathology / metabolic / infections)

Dementia with Lewy Bodies

Functional parkinsonism

Other neurodegenerative movement disorders (huntingtons, spinocerebellar ataxia)

HOW TO DIAGNOSE

- Clinical diagnosis
  - Parkinsonism with at least tremor or rigidity
  - Exclusion criteria
- Response to dopaminergic therapy
- Other additional tests
  - Conventional MRI esp to exclude other diagnoses
  - Advanced neuroimaging – SPECT; FDG-PET
  - Genetic testing

TREATMENT/ MANAGEMENT

- NON-PHARMACOLOGICAL
  - Emotional support
  - Exercise and physical therapy
  - Safety issues – falls and driving
  - Speech therapy
  - Nutritional support
  - Music therapy / Dance therapy

TREATMENT/ MANAGEMENT

- PHARMACOLOGICAL
- Levodopa (combined with carbidopa or benseride to lessen side-effects)
- Dopamine agonists – stimulate dopamine receptors in the brain
- MAO-B inhibitors – block the enzymes that inactivate dopamine
- COMT inhibitors – to prolong the effect of levodopa
- Amantadine – antiviral but improves mild symptoms
- Non-motor symptoms treatment
- DEEP BRAIN STIMULATOR IMPLANTATION (DBS)

CURRENT ONGOING RESEARCH

- Disease modifying or neuroprotective drugs
- Genetic risks
- Advances in technology helps with access to care
- Artificial intelligence
- Biomarkers for abnormal alpha-synuclein

CLOSING REMARKS

- Thank you for your attention! (thus far)