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# PARKINSON'S DISEASE IN AGRICULTURAL ENVIRONMENT

## Recognising pesticides links with Parkinson's diseases?



CCMSA  
Brussels  
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# Parkinson's disease

- The most common neurodegenerative disease after Alzheimer's disease
- An increase in the frequency with the age
  - After 65 years:  $1.5\% < F < 2\%$
- Cumulative risk for the whole life: 1.6%
- Today: 100,000 sick people in France
- Estimate for 2040: 140,000 concerned people



# Parkinson's disease

- Links with environmental factors are very often pointed out
- Results of studies
  - Links with agricultural environment
  - Links with exposure to pesticides



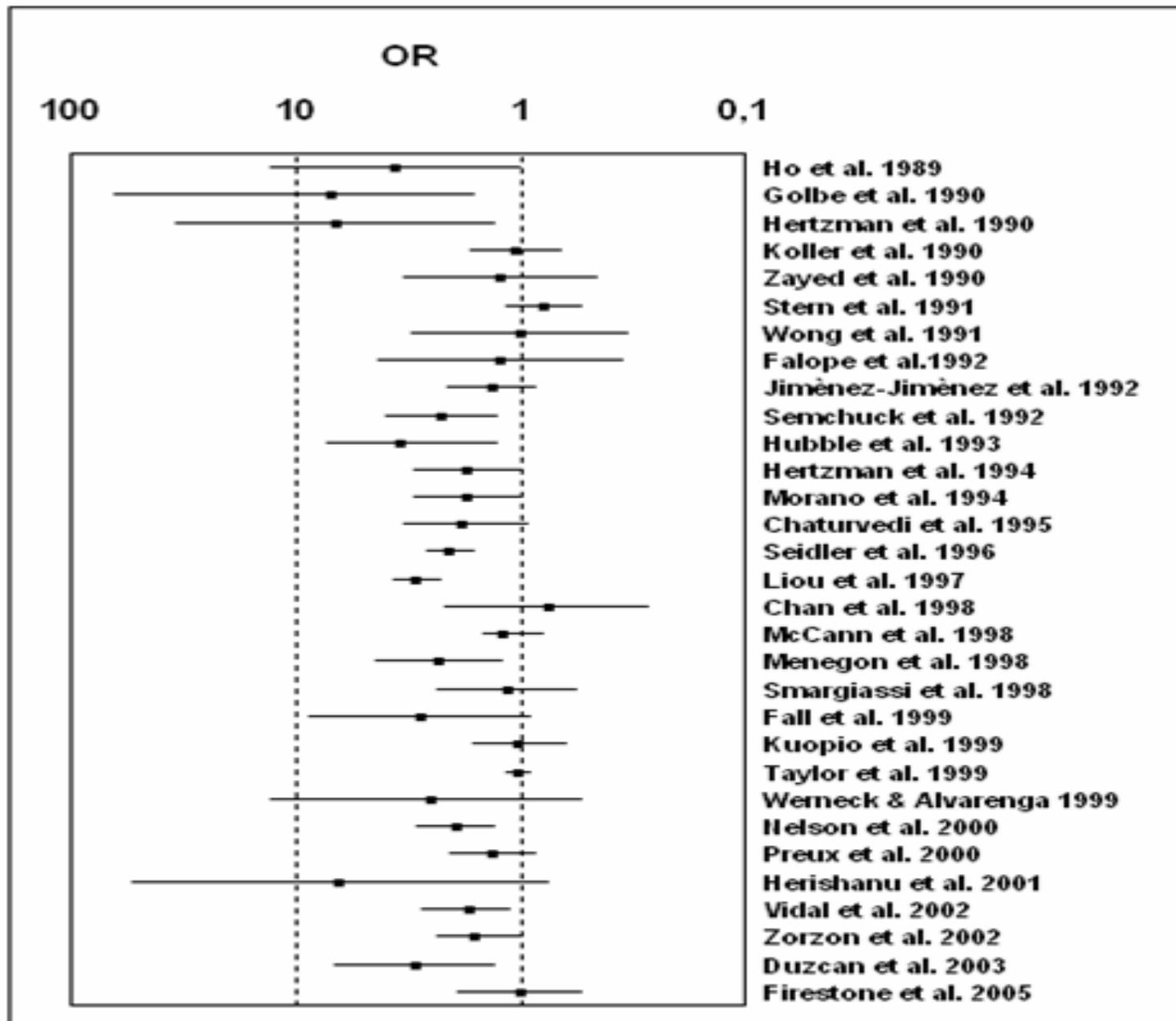
# Toxicological facts

- Parkinson-like symptoms with
  - Mancozeb (acute intoxications)
  - MPTP (similar to paraquat): concerns drug users and chemical engineers
- Animal studies
  - MPTP (similar to paraquat)
  - Rotenone (biological insecticide)
  - Some fungicides: Maneb



# Epidemiological facts

- Priyadarshi (2001): meta-analysis of PD
  - 19 case-control studies analysing several factors of risks:
    - Frequent exposure to pesticides: OR 1.85 [1.31-2.60]
    - Living in rural area: OR 1.56 [1.18-2.07]
    - Well water consumption: OR 1.26 [0.97-1.64]
- Overview of 31 studies (1989-2005) about the relation between PD and exposure to pesticides





## MSA study: « étude Terre »

- Case-control study (1998-1999)
  - Patients insured by the *Mutualité Sociale Agricole* (health insurance system of French agricultural populations)
  - 247 cases and 676 controls



- Results

- Link between PD and farmer's occupation (OR=1.9, IC 95%=1.3-2.9)
- Link between PD and exposure to pesticides (OR=1.8, IC 95%=1.1-3.3)
- Dose-effect answer (after a 15-year exposure)



# Occupational diseases in France

- Among MSA's insured population
  - 13,000 PD cases
  
- 2004 and 2006
  - 2 PD cases recognised as occupational illnesses in relation with pesticides



# MSA projects and actions

- Specific project about PD
  - A new study called « **Partage** » about PD
- Other actions
  - A cohort study « Agrican » to analyse the relation between cancer and agricultural occupations
  - Information and training for pesticides users: good practices
  - Phyt'attitude: agricultural toxicovigilance network



## Study « Partage »

- Case-control study (2007-2008) targeting patients insured by MSA
  - About 1,200 expected people (420 PD, 840 controls)



# Study « Partage »

- Goals

- Estimating the PD frequency in agricultural environment
- Looking for PD factors of risk (occupation, chemical exposure...)
- Searching for increased PD risk associated to agricultural activities



Phyt'attitude

**Phyt'***attitude*

*Signalez-nous vos symptômes*

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