TITLE OF THE PROJECT: Working life occupation and cognitive ageing

HEAD OF THE TEAM: Claudine Berr, Inserm U1061 – Neuropsychiatry: epidemiological and clinical research

SUMMARY

Background

The main focus of this project is to examine the ways in which work exposures over the lifecourse influence cognitive ageing in early old age. There are multiple work exposures and we intend to examine them, specifically in relation to cognitive ageing in early old age. The multiple work exposures examined are outlined below:

- Psychosocial factors at work. A growing body of evidence from prospective studies suggests that psychosocial factors at work are significant determinants of health. The two prominent models in this domain are the job strain model and the effort–reward imbalance (ERI) model. The accumulated effects of psychosocial exposures are likely to persist beyond retirement age. The extent to which they affect cognitive ageing remains unclear and is one of the objectives of this proposal.

- Long-term effects of occupational exposure to chemicals or physicals agents: Besides acute toxicity, research suggests long-term effects of chemical exposures for various chronic diseases. Our previous results show long term effect of solvents exposure, even after retirement and cessation of exposition requires further confirmation.

- The cognitive reserve hypothesis suggests that innate intelligence or aspects of life experience, such as educational or occupational attainment, provide a set of skills that protects individuals from cognitive decline. Higher occupational status and educational achievement have been linked to a reduced risk of dementia, as well as a better cognitive performance in late life. From a lifespan perspective, occupational complexity may be important for cognition in addition to the effects of education. Our hypothesis is that jobs that are challenging (ie supervisory or managerial demands), involve novelty, engagement with others, etc. are likely to have a protective effect on cognition. Cognitive reserve could be the result of accumulated experiences throughout the lifecourse, influenced by cognitively stimulating activities, both at the workplace and outside it, including leisure and social activity.

Objectives

Our objective is to examine association between multifaceted work exposures and cognitive ageing first separately and subsequently simultaneously while considering interactions between the positive or negative dimensions considered.

Methods
Exposure
Based on full "Job history" questionnaire and the face-to-face "Occupational exposure" questionnaire on past and current employment and working conditions administered by a trained interviewer. Different levels of details in exposure and type of exposure could be considered:

- lifelong and current occupational exposure to chemical, physical, and biological agents based on self-reported information and later on linkage to the MATGENE job-exposure matrices

- stress at work (job content questionnaire-JCQ, effort-reward imbalance-ERI scales)

- definition of stimulating activities either in the workplace or during leisure time

Outcome

- Cognitive and functional tests tests

- Dementia

- Early expression of frailty

- Respiratory and musculoskeletal outcomes will be also considered, in relation with specific Constances projects devoted to these questions.

In the initial phase of the project, we will undertake cross-sectional analyses using the baseline data which have the advantage to document retrospectively full job history.

Cross sectional analyses should begin exploratory on a data base including at least 10000 subjects over 45 under the hypotheses that there will be 20% of subjects with solvent exposure during occupational life.

Of course, studying cognitive decline (second point at 5-year FU) will be more fruitful than studying cognitive impairment and early expression of frailty.

Perspectives might also include early biomarkers of ageing, such as imageing of brain and joints, depending on funding.

Note: this project is part of the research consortium 'PRESAGE – PREparing Successful AGEing'