

Poster presentation

## **M.R.I. changes with increasing age: comparison between schizophrenics and health subjects**

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### **Background**

A critical review of M.R.I studies between the years 2001-2006, that include a re-evaluation after two to five years and the factors that influence possible changes.

### **Materials and methods**

Selective review of M.R.I studies between 2001-2006, in Medline. Preferential focus on review articles, meta-analyses and studies including large number of participants.

### **Results**

The variation in healthy brain structure depends on sex, handedness, genetics and experience. Sex variations are the most important factor, influencing the results of MRI studies including schizophrenic patients. Other crucial factors are the presence of clinical symptoms, medication status, family history and the presence cognitive deficits. In healthy subjects the maximum gray matter volume appears between 15-20 years of age and declines steeply with increasing age. The volume of the ventricles increases after the age of 20 and white matter volume increases slowly after 15-20 years of age. Schizophrenic patients compared with healthy volunteers have reduced total brain volume ( $\beta$ 12%), increased ventricles ( $\alpha$ 20%), gray matter volume loss ( $\beta$ 1-5%), but no statistical difference in white matter volume. Some patients present increased ventricles during the first episode, but no further dilation. Others show no statistical significant enlargement at first, however after 2-5 years their ventricles become greater

than those of healthy subjects. Gray matter is reduced from the first episode and continues to decrease steeper than in age matched healthy volunteers.

### **Conclusions**

The neurodevelopmental model of schizophrenia explains only some of the MRI finding, such as increased ventricles, with no subsequent dilation. Some schizophrenic patients present (also) neuro-degenerate finding (such as continuous increase of ventricles and gray matter volume loss), that might represent an accelerated aging process.