Divergent thinking: new insights about patients affected by Mild Cognitive Impairment

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Introduction

Divergent thinking (DT) and its potential role in terms of diagnosis and rehabilitation for patients with Alzheimer Disease (AD) have attracted the scientific interest. On one side, previous studies¹,² have demonstrated that cognitive reserve can be predicted by divergent thinking abilities in healthy aging subjects and, on the other side, that patients affected by different neurological disease (i.e. neurodegenerative disease or focal lesion) showed modification in artistic creativity and divergent thinking (DT)². Specifically, DT usually begins early to decrease in non-artist AD subjects³.

Less is known about DT abilities in patients affected by Mild Cognitive Impairment (MCI). Our study aims to preliminary observe the impact of DT and cognitive reserve in MCI patients.

Methods

The main measures evaluate three different domains:
1. General cognitive functioning and cognitive reserve with Mini Mental State Examination – MMSE (Magni et al., 1996); Montreal Cognitive Assessment – MOCA (Nasreddine et al., 2005); Cognitive reserve index – CR (Cognitive Reserve Index – CRIq, Nucci et al., 2012);

2. Psychological measures: perceived quality of life with McGill Quality of Life Questionnaire-It - MQOL-It, (Sguazzin, Giorgi, Alesii, & Fini, 2010); Depression with Beck Depression Inventory – BDI, (Beck et al., 1961); Status anxiety with State Trait Anxiety Inventory X1 – STAI, (Zotti et al., 1985); Apathy with Apathy Evaluation Scale – AES, (Marin et al., 1991; Starkstein et al, 1992);

3. Divergent thinking: measured by Creativity Index (CI) from Abbreviated Torrance Test for Adults – ATTA (Goff & Torrance, 2002).

Results

MCI patients performed worse at MOCA (p=0.002) and ATTA test (p=0.010). No differences between the two groups were found in MMSE and CRIq total score.

In the control group (N=20), significant positive and moderate correlations between creativity index measured by ATTA and CRIq total score and between other important subscales were observed (indicated by * in the white Tables). No correlation between CRIq and ATTA were found in the MCI group;

Instead, in the MCI group (N=18), moderate but negative correlations (*) between apathy (AES) and fluency subscale (ATTA) and between anxiety (STAI) and flexibility subscale (ATTA) were found.

Conclusions

Our preliminary results show that, in line with current literature², there is a significant positive correlation between DT and CR in the healthy aging subjects of the control group; this is not replicated in the MCI group. This results allow us to hypothesize that the cognitive decline, which is already in progress in MCI patient, could affect early DT. Furthermore, our data suggests that higher rate of apathy or anxiety scores in MCI patients could have a negative impact on divergent thinking abilities that appear to decrease in this group. Further investigations about the relationship between apathy, anxiety and divergent thinking in MCI patients are needed. Future research will be also focused on the relationship between DT and CR in terms of its implication for cognitive stimulation and rehabilitation programs.

References