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Neural basis of irony in patients with Multiple Sclerosis: an exploratory fMRI study

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INTRODUCTION

- **Ironic** is a complex form of social language which requires the involvement of various cognitive processes (working memory, theory of mind). Its use contributes to the development and maintenance of social relations.
- **Multiple Sclerosis** (MS) is a neurodegenerative disease leading to a progressive and unpredictable increasing level of disability.
- Knowledge about cognitive and theory of mind impairments in MS has been growing recently and is recognized for participating in social disability of MS patients. However, to the best of our knowledge, no study has explored the neural basis of social language, like irony, using fMRI.

MS patients perform equally than controls when judging irony but are significantly slower

MATERIAL & METHODS

- **Subjects**: N Group Subjects were matched for education
  - 21 Healthy controls: 14 Women 7 Men 44 Age
  - 20 MS Patients: 14 Women 6 Men 46 Age

DATA ACQUISITION

- 3x3x3 mm3
- 840 volumes (28 min) across 3 runs
- TR=2 s

Irony detection task

- 90 Trials
- 30 Ironic
- 30 Unrelated
- 30 Sincere

Participants were presented 90 stories. They had to evaluate if the statement was ironic or not. A single session contained 10 trials of each condition.

Context

Claire and Luke are camping. Antoine’s tent is near the bins.

Statement

Claire says: “You do pick the best spots !”

Participants were presented 90 stories. They had to evaluate if the statement was ironic or not. A single session contained 10 trials of each condition.

CONCLUSION

- **MS patients** perform equally as healthy controls when judging the irony of items in every experimental condition
- **MS patients** are significantly slower than healthy controls
- The imaging results suggest that MS patients show more extended activations in the left middle temporal gyrus and left postcentral gyrus than healthy controls
- These preliminary results are in line with recent data in the field of emotion recognition and support the idea that MS patients benefit from brain adaptation mechanisms to compensate for neurological and functional impairment

REFERENCES