

Cognitive performance of patients with chronic Q fever or Q fever fatigue syndrome

Daphne Reukers¹, Justine Aaronson², Joris van Loenhout¹, Koos van der Velden¹, Jeannine Hautvast¹, Ellen van Jaarsveld¹, Roy Kessels²

1. Department of Primary and Community Care, Radboudumc, Nijmegen

2. Department of Medical Psychology, Radboudumc, Nijmegen

Introduction

- 1-5% of Q fever patients develop chronic Q fever, mostly as endocarditis or vascular infection.
- Q fever fatigue syndrome (QFS) consists of severe debilitating fatigue lasting for more than 6 months experienced by patients months or years after acute Q fever infection.
- Previous studies have shown that Q fever patients experience cognitive complaints and may suffer from diminished cognitive functioning.

Objective

The goal of this study is to explore the cognitive performance of chronic Q fever and QFS compared to the general population and to assess correlation between subjective cognitive complaints and objective cognitive performance

Methods

Four cognitive domains were assessed with standardized neuropsychological tests:

- **Memory** (Rey Auditory Verbal Learning Test)
- **Working Memory** (Digit Span Test)
- **Information Processing Speed** (Trail Making Test Part A, Stroop Color-Word test Card I and II, Letter Digit Substitution test)
- **Executive Functions** (Trail Making Test part B, Stroop Interference score, Category Fluency test)

Conclusion

- High level of cognitive complaints in QFS patients did not indicate cognitive impairment.
- This study shows the importance of including a neuropsychological test battery with measures of performance validity to assess cognitive functioning rather than using subjective measures of cognition.

- Performance validity, cognitive complaints and premorbid intelligence level (IQ) were also assessed.
- Each Q fever group was compared with a specific frequency-matched control group, with 30 chronic Q fever and 23 controls and 32 QFS patients with 21 controls.
- MANCOVA was used to compare the groups on the four cognitive domains with correction for age and IQ. Participants with poor performance validity were excluded.
- Correlations were analyzed with Spearman's rho.

STROOP COLOR-WORD TEST				
STATE THE COLOR AS FAST AS YOU CAN				
1.	RED	GREEN	YELLOW	BLUE
	BLUE	YELLOW	RED	GREEN
2.	RED	GREEN	BLUE	YELLOW
	YELLOW	BLUE	RED	GREEN

Results

- A high percentage of chronic Q fever patients showed poor performance validity (38%, $p=0.066$) compared to controls (14%).
- QFS patients reported a high level of cognitive complaints compared to controls (41.2, $p=0.023$).
- There was no significant difference in any of the cognitive domains between Q fever patients and controls after exclusion of participants with poor performance validity.
- Cognitive complaints were not significantly correlated with any of the cognitive domains.