Background: Previous studies have suggested that RA confers an increased risk for worsened cognition later in life compared with the general population. Research in dementia has also indicated that the presence of subjective cognitive complaints may be a sensitive indicator of cognitive decline. Little is known about the inflammatory, psychological, and functional predictors of worsening subjective cognitive complaints among patients with RA. Less is known about the relative contribution of how a change in these risk factors may affect an RA patient’s perceived cognitive function.

Methods: We analyzed data from BRASS, a longitudinal RA cohort study. The data collection includes joint exams, serological analyses, and patient reported outcome measures collected annually from 2003-2014. Patients were asked to report the degree of their cognitive complaints concerning their memory, concentration, and word-finding difficulties (Table). In univariate analyses, we assessed known predictors for cognitive complaints (age, gender, ethnicity, education, CV Risk (Desai et al, 2012)) and computed variables that measured the past year’s change (MDHAQ depression, MDHAQ fatigue, MDHAQ sleep, exercise level (METS), DAS28-CRP3, corticosteroid use) in relation to a worsening of cognitive complaints. Univariate factors (p<0.10), sociodemographic variables and the CV risk score were then entered into a multivariate backwards elimination mixed model to assess their impact on the degree of cognitive complaints.

Results: There were a total of 1126 subjects with at least two annual visits used in this analysis. Univariate analyses revealed that an increase in MDHAQ depression, fatigue, and corticosteroid use as well as a decrease in sleep quality and exercise level were associated with worsened cognitive complaints at follow-up. The multivariate mixed model that adjusted for sociodemographic variables and the CV risk score showed only that worsening MDHAQ depression, fatigue and increased corticosteroid use were associated with an increase in cognitive complaints one year later (Table). Neither a change in DAS28-CRP3 score nor exercise level impacted the degree of reported cognitive complaints.

Conclusions: Cognitive difficulties in RA are sensitive to a worsening of psychological factors such as depression but also to a change in corticosteroid use and fatigue. In this analysis disease activity measures do not appear to influence subjective cognitive complaints over time. Future studies of cognition difficulties in RA patients should focus on whether corticosteroid use and fatigue levels may be markers of subclinical disease activity that may drive patients to more likely reflect upon cognitive difficulties.

Clinical and psychological factors predicting an increase in subjective cognitive complaints

|  |  |  |  |
| --- | --- | --- | --- |
| Multivariate Mixed Model\* | β coefficient | Standard Error | P-Value |
| Age (continuous) | -0.001 | 0.002 | 0.64 |
| Sex (Female or not) | -0.100 | 0.059 | 0.09 |
| CV Risk Score (0-9) | -0.004 | 0.013 | 0.76 |
| Ethnicity (White or not) | 0.072 | 0.094 | 0.44 |
| Education (college and above or not) | 0.049 | 0.046 | 0.28 |
| **Worsened MDHAQ Depression (-3, 3)** | **0.290** | **0.047** | **<0.0001** |
| **Worsened MDHAQ Fatigue (-100, 100)** | **0.007** | **0.001** | **<0.0001** |
| **Addition of corticosteroids**  | **0.149** | **0.070** | **0.03** |
| \*Dependent variable (Δ Cognitive complaint) -6-6, higher equals increased cognitive complaints Do you have any of the following symptoms NOW?  Poor Memory (Not at all, Sometimes, Often) Poor Concentration (Not at all, Sometimes, Often) Word-finding Difficulty (Not at all, Sometimes, Often) |