1. Introduction

In 2015, dementia cost the Unites States of America alone $226 billion; by 2050, this cost is projected to rise to $1.1 trillion (1). An often underestimated cost of dementia is the impact upon informal caregivers for dementia patients. Dementia caregiving is associated with heightened stress and increased depression (2). There is emerging evidence that dementia caregiving may impact upon central nervous system activity in informal caregivers (3; see Figure 1); this may exacerbate the physiological effects of ageing. Furthermore, there is evidence of a higher prevalence of irritable bowel syndrome in carers for relatives with serious illness (4). We examined the cognitive neurobiology and mental well-being of dementia caregivers, as well as interventions targeting stress and the caregiving role.

2. Aims of the Study

Aims: (1). Examine psychological and gastrointestinal well-being in an Irish cohort of caregivers for family members with dementia. (2). Examine whether carer interventions can attenuate the impact of chronic stress.

Hypotheses: (1). Dementia caregiving is associated with heightened stress and worsened psychological and gastrointestinal health. (2). Carer interventions are associated with an attenuation of this effect.

3. Methods

3.1. Caregiver assessment

Family dementia caregivers were recruited via the Memory Clinic at St. Finbarr’s Hospital, Cork. Caregivers were providing at least 10 hours of unpaid care per week to a relative or friend with dementia. Caregivers had been providing care for a mean of 46.5 months (SD = 41.7), and were providing a mean of 45 hours per week of care (SD = 52.3). Controls were recruited from the community, and were matched for age and gender. Exclusion criteria were: serious health problems, taking a medication that would confound the aims of the study, participation in a trial involving experimental drugs in the last 30 days. Stress and mental health: Stress was assessed using the Cohen Perceived Stress Scale (PSS). Depression was assessed using the Beck Depression Inventory (BDI). Gastrointestinal symptoms: Gastrointestinal symptoms were assessed using the irritable bowel syndrome symptom severity scale (IBSS-55). Neurocognitive performance: Participants completed the paired associates learning task (PAL), rapid visual information processing (RVP), simple reaction time and spatial span tests from the CANTAB platform (see Figure 2).

3.2. Caregiver interventions

A subset of participants (N = 11) completed both a carer training program (CTP) and mindfulness-based stress reduction (MBSR) program, provided at St. Finbarr’s Hospital, Cork, Ireland. The CTP provided information about the nature of dementia, dealing with challenging behaviours, legal rights and entitlement, stress management and self-care. The MBSR program involved practicing of mindfulness meditation with an experienced mindfulness practitioner, with discussion of mindfulness practice. Each program was provided by an experienced instructor in a group format and lasted approximately 2 months.

4. Results

4.1. Psychological and GI well-being in caregivers

Dementia caregivers reported significantly higher stress than non-caregivers, F(1, 35) = 5.69, p = .02, ηp² = .14 (see Figure 3). However, this did not change significantly following the interventions (see Figure 3b). Dementia caregivers reported higher depression than non-caregivers, a marginally significant effect, F(1, 32) = 3.72, p = .06, ηp²=.12 (see Figure 3b). This did not change significantly following the interventions (see Figure 4b). Dementia caregivers did not differ from non-caregivers in GI symptoms, and their symptoms did not change significantly following the interventions (see Figure 5).

5. Discussion & conclusions

- Dementia caregiving is associated with heightened levels of self-reported stress and depression, as well as poorer memory and sustained attention performance, but not with alteration in gastrointestinal symptoms. These findings may underpin a possible cognitive neurobiology of caregiving.
- Both MBSR and carer training programs for dementia caregivers may attenuate the impact of chronic stress on cognitive performance.
- A comprehensive physiological phenotyping of dementia caregivers is required to better understand the mechanisms of these effects.

6. Acknowledgements & Disclosure

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7. References