

Cod Liver oil and Prevention of Neurodegeneration in the Elderly: *Student EBM presentations*

Yoni Dennis and Henry de Berker
University of Oxford

October 2014



The question

Mrs. P.W. comes to see you at the GP practice because her mother has been diagnosed with dementia.

She is 62 years old, and in good health.

Her auntie (mother's sister) has taken cod liver oil supplements since 20 years old, and does not have dementia.

Mrs. P.W. would like to know whether she should start taking cod liver oil as well.

P	Healthy 62 year old woman
I	Omega-3 Fatty Acid Supplements
C	Other oil supplements
O	Changes in dementia or mental capacity

The search and search results

The Cochrane Library:

- Omega 3 fatty acids: 30 results
- Omega 3 fatty acids mental: 3 results

<input type="checkbox"/>		Omega 3 fatty acid for the prevention of cognitive decline and dementia Emma Sydenham , Alan D Dangour and Wee-Shiong Lim Online Publication Date: June 2012	Review
<input type="checkbox"/>		Polyunsaturated fatty acids (PUFA) for attention deficit hyperactivity disorder (ADHD) in children and adolescents Donna Gillies , John KH Sinn , Sagar S Lad , Matthew J Leach and Melissa J Ross Online Publication Date: July 2012	Review
<input type="checkbox"/>		Polyunsaturated fatty acid supplementation for schizophrenia Claire B Irving , Roger Mumby-Croft and L A Joy Online Publication Date: July 2006	Review



The study appraisal

- **Search:**
 - ‘Omega-3’, ‘PUFA’, ‘Fatty acid*’, fish, linseed, eicosapentaenoic, docosahexaenoic.
 - Contacted a number of manufacturers of omega-3 supplements to ask for published and unpublished data – none was relevant.
 - 3 trials starting with 4080 participants (3536 at follow-up)
- **Selection criteria:**
 - Participants > 60 years old and without dementia or cognitive impairment
 - Minimum 6 months of treatment
- **Randomisation**
 - Assessed by two separate reviewers, and considered unbiased.
- **Ascertainment**
 - Follow up between 6 months and 24 months
- **Primary outcomes**
 - ~~Incident of dementia of any cause~~
- **Secondary outcomes**
 - Memory and cognitive function
 - Cognitive function tests (Word learning test, Weschler digit span, Trail making test, Stroop test, and verbal fluency) or Mini Mental State Examination (MMSE)
 - Safety – Study nurse every 3 months or patient diary
 - Adherence – Return of unused capsules and patient reporting



The Results (interpretation of findings)

- **Cognitive function or MMSE**
 - Little or no deterioration from start to end of trials
 - No detectable difference between intervention and controls
- **Safety**
 - GI side-effects most commonly reported in all intervention groups
 - No clear difference between intervention and control groups
- **Adherence**
 - Between 99% and 91% (reduced with length of trial)
 - Not enough info to suggest difference between margarine or capsules (no study used both)

The Implications

- There is no suggestion that Mrs. P.W. would benefit from taking omega-3 fatty acid supplements (Cod Liver Oil).
- However, these studies do not rule out an effect of Cod Liver Oil over a longer time course.
- There are no obvious side-effects of taking cod liver oil, so if it is a comfort to the patient then it might be useful.
- Talk through the known causes of dementia with the patient.