

Cannabis and Health

Module 12: Neurocognitive/Brain Disorders Part II

Lecture 4: Current Treatments for Parkinson's Disease
and Alzheimer's Disease

Treatments: Alzheimer's

- There is a contrast in the literature, where there are some drugs that improve cognitive functions (A)
- However, these drugs/improvements are less beneficial for global functioning (B; next slide)

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Comparative safety and effectiveness of cholinesterase inhibitors and memantine for Alzheimer's disease: a network meta-analysis of 41 randomized controlled trials

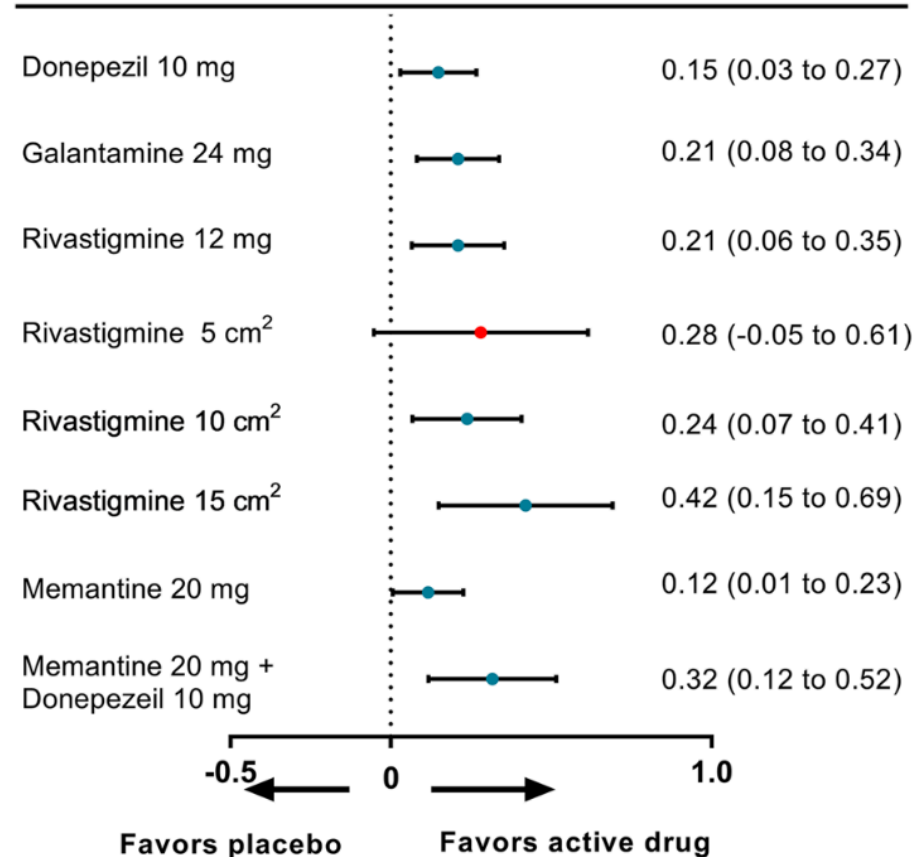
Kai-Xin Dou¹, Meng-Shan Tan¹, Chen-Chen Tan¹, Xi-Peng Cao², Xiao-He Hou¹, Qi-Hao Guo³, Lan Tan^{1*}, Vincent Mok^{4,5,6} and Jin-Tai Yu^{1,7*}

A

• Significantly in favor of active drug

• Non-significant result

SMD (95% CrI)

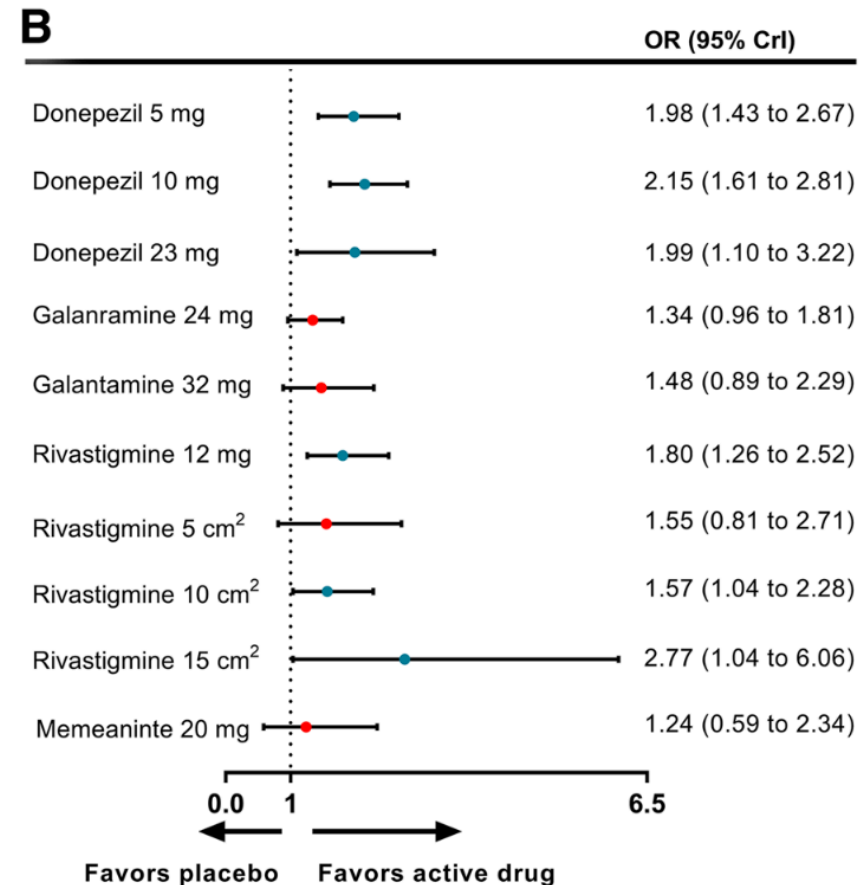


Treatments: Alzheimer's

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- However, these drugs/improvements are less beneficial for global functioning (B)

Comparative safety and effectiveness of cholinesterase inhibitors and memantine for Alzheimer's disease: a network meta-analysis of 41 randomized controlled trials

Kai-Xin Dou¹, Meng-Shan Tan¹, Chen-Chen Tan¹, Xi-Peng Cao², Xiao-He Hou¹, Qi-Hao Guo³, Lan Tan^{1*}, Vincent Mok^{4,5,6} and Jin-Tai Yu^{1,7*}



Side effects of AD medications

- Common side effects are usually mild and include:
 - diarrhea
 - vomiting
 - Nausea
 - fatigue
 - Insomnia
 - loss of appetite
 - weight loss

Treatments: Alzheimer's

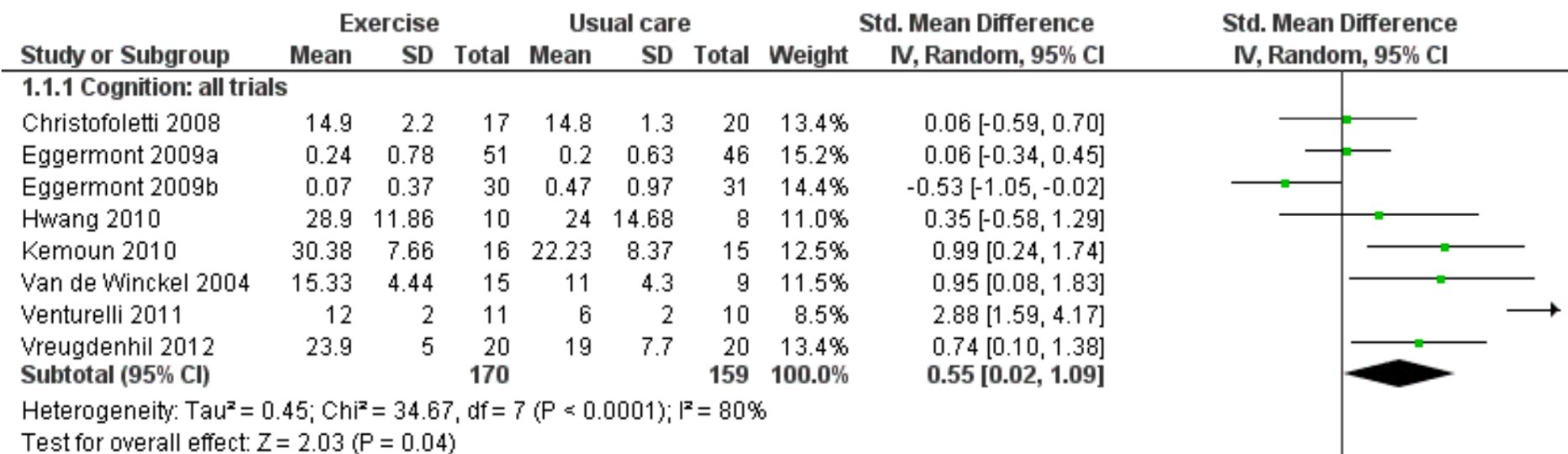


- The principal goals for dementia care are:
 - Early diagnosis, to promote early and optimal management
 - Optimizing physical health, cognition, activity, and well-being
 - Identifying and treating accompanying physical aspects of the illness
 - Detecting and treating challenging behavioural and psychological symptoms
 - Providing information and long-term support to caregivers

Treatments: Alzheimer's



- Exercise programs may be beneficial for daily living and can potentially improve outcomes
 - A Cochrane Review provided a more nuanced picture
 - Exercise had moderate effects on dementia, overall (below)
 - But for moderate-severe cases, benefit was not significant (next slide)



Treatments: Alzheimer's



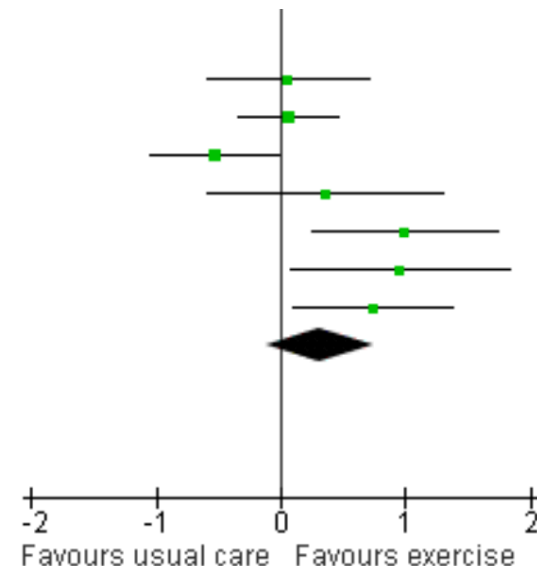
- Exercise programs may be beneficial for daily living and can potentially improve outcomes
 - A Cochrane Review provided a more nuanced picture
 - Exercise had moderate effects on dementia, overall
 - But for moderate-severe cases, benefit was not significant (below)

1.1.2 Cognition: excluded moderate-severe dementia

Christofolletti 2008	14.9	2.2	17	14.8	1.3	20	14.7%	0.06 [-0.59, 0.70]
Eggermont 2009a	0.24	0.78	51	0.2	0.63	46	18.6%	0.06 [-0.34, 0.45]
Eggermont 2009b	0.07	0.37	30	0.47	0.97	31	16.8%	-0.53 [-1.05, -0.02]
Hwang 2010	28.9	11.86	10	24	14.68	8	10.7%	0.35 [-0.58, 1.29]
Kemoun 2010	30.38	7.66	16	22.23	8.37	15	13.1%	0.99 [0.24, 1.74]
Van de Winckel 2004	15.33	4.44	15	11	4.3	9	11.4%	0.95 [0.08, 1.83]
Vreugdenhil 2012	23.9	5	20	19	7.7	20	14.7%	0.74 [0.10, 1.38]
Subtotal (95% CI)			159			149	100.0%	0.31 [-0.11, 0.74]

Heterogeneity: $\tau^2 = 0.21$; $\chi^2 = 18.49$, $df = 6$ ($P = 0.005$); $I^2 = 68\%$

Test for overall effect: $Z = 1.45$ ($P = 0.15$)



Treatments: Alzheimer's

Key therapeutic topics

Low-dose antipsychotics in people with dementia

Published: 31 January 2013

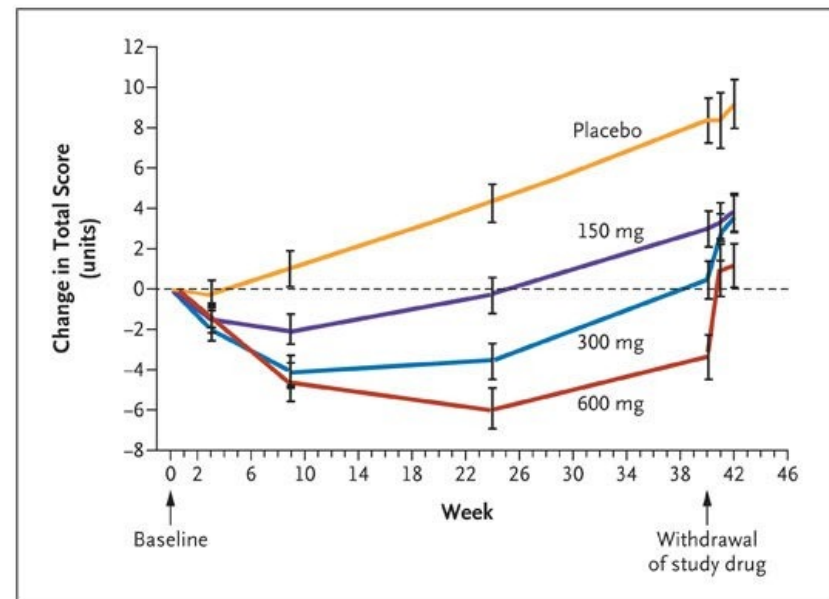
- Behavioural problems due to dementia have been treated with antipsychotics
- However, this is not recommended, as there is little benefit with an increased risk of early death
- There is some evidence that prescribing antipsychotics for dementia is on the decline
 - In the UK in 2011, there was a 10% decrease in the number of people with dementia receiving prescriptions for antipsychotics (from 17% in 2006 to 7% in 2011)
 - A 60% reduction in relative terms
 - Similarly, the proportion receiving an antipsychotic within a year of being diagnosed with dementia decreased by 10% (from 14% in 2006 to 4%), in 2011
 - A 69% reduction in relative terms

Treatments: Parkinson's

Meta-Analysis of the Comparative Efficacy and Safety of Adjuvant Treatment to Levodopa in Later Parkinson's Disease

Rebecca Stowe, PhD,^{1*} Natalie Ives, MSc,¹ Carl E. Clarke, MD,^{2,3} Kelly Handley, PhD,¹ Alexandra Furmston, PG Dip,¹ Katherine Deane, PhD,⁴ J.J. van Hilten, MD,⁵ Keith Wheatley, D Phil,⁶ Richard Gray, MSc¹

- There is no cure for Parkinson's disease, but treatments can improve symptoms
 - Initial treatment is typically with the anti-Parkinson medication levodopa (L-DOPA; a dopamine precursor)
 - Dopamine agonists are used once levodopa becomes less effective



Treatments: Parkinson's

Major Nutritional Issues in the Management of Parkinson's Disease

Michela Barichella, MD,¹ Emanuele Cereda, MD,^{1,2*} and Gianni Pezzoli, MD¹

- As the disease progresses and neurons are lost, dopaminergic medications become less effective
 - Regular exercise is helpful
 - Nutritional interventions could also be planned to prevent weight changes and may help diminish nutritional deficiencies
 - Diet and some forms of rehabilitation have shown some effectiveness at improving symptoms (see right for a model)

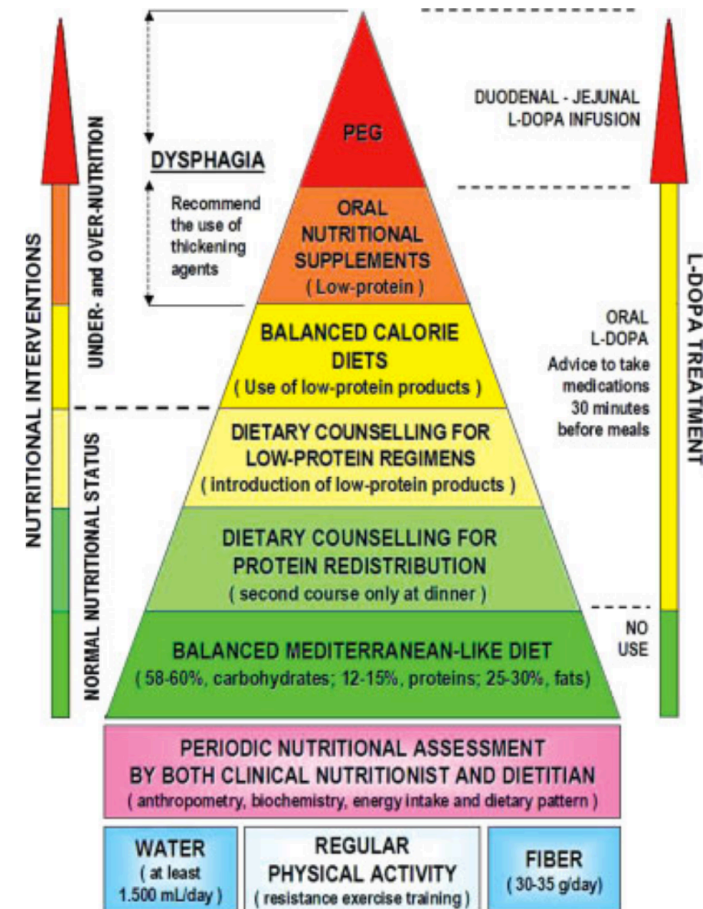


FIG. 3. A potential nutritional treatment pyramid for patients with PD in relation to stage of disease.

Treatments: Parkinson's

- Anti-Parkinson's medications (levodopa carbidopa) have limitations
 - Evidence for treating non-movement symptoms of PD (e.g., sleep disturbances, emotional problems) is weak
 - Dopaminergic medications also produce long-term complications (e.g., involuntary movements)
- Anxiety, irritability, depression, sleep disturbance, pain are examples of symptoms that are not treated with PD specific medications

Conclusions

- Exercise intervention is important EARLY in the course of AD
- Exercise intervention is also important in PD
- There are medications that may modestly help for the cognitive effects of AD, less so for global functioning
 - Antipsychotics used for behavioral symptoms – bad side effects
- Several medications are helpful for PD motor symptoms, less so for non-motor symptoms