

Introduction

- Pain is challenging to detect and may be undertreated in patients with moderate-to-severe Alzheimer's Disease (AD)
- Pain often manifests as agitation, but may also be associated with additional neuropsychiatric symptoms (NPS)
- Examining which NPS are associated with pain may help identify alternative and effective treatment strategies



Study Objectives

- To investigate neuropsychiatric measures associated with pain in moderate-to-severe AD patients

Methods

Study design: 14-week randomized, double-blind, placebo-controlled, crossover trial of nabilone

Inclusion Criteria

- ≥ 55 years old
- DSM-V criteria for Major Neurocognitive Disorder due to AD
- sMMSE ≤ 24
- NPI Agitation Subscale ≥ 3
- Stable dose of cognitive-enhancing medications ≥ 3 months; psychotropic medications ≥ 1 month

Exclusion Criteria

- Contraindications to nabilone
- Current cardiovascular disease
- Presence or history of other psychiatric disorders, neurological conditions, abuse of/dependence on marijuana

Results

Table 1: Baseline characteristics

	Mean \pm SD or Frequency (N=12)
Age (years)	87.7 \pm 8.4
Sex (%Male)	66.7%
Systolic BP	116.8 \pm 15.9
Diastolic BP	65.4 \pm 6.8
BMI	23.3 \pm 4.3
Number of Concomitant Illnesses	6.2 \pm 3.0
Number of Concomitant Medications	16.0 \pm 6.4
NPI Total	29.8 \pm 16.0
NPI Agitation	5.9 \pm 3.7
PAINAD	3.0 \pm 1.7
CMAI	68.4 \pm 21.4
sMMSE	7.6 \pm 6.4
SIB (N=11)	48.6 \pm 26.5
ADAS-Cog (N=1)	26.0 \pm 0
MNA-SF	7.6 \pm 3.1
CGI	3.9 \pm 0.8

BP= blood pressure, BMI= body mass index, NPI= Neuropsychiatric Inventory, PAINAD= Pain Assessment in Advanced Dementia, CMAI= Cohen-Mansfield Agitation Inventory, sMMSE= Standardized Mini-Mental State Examination, SIB= Severe Impairment Battery, ADAS-Cog= Alzheimer's Disease Assessment Scale of Cognition, MNA-SF= Mini Nutritional Assessment- Short form, CGI= Clinician's Global Impression Scale

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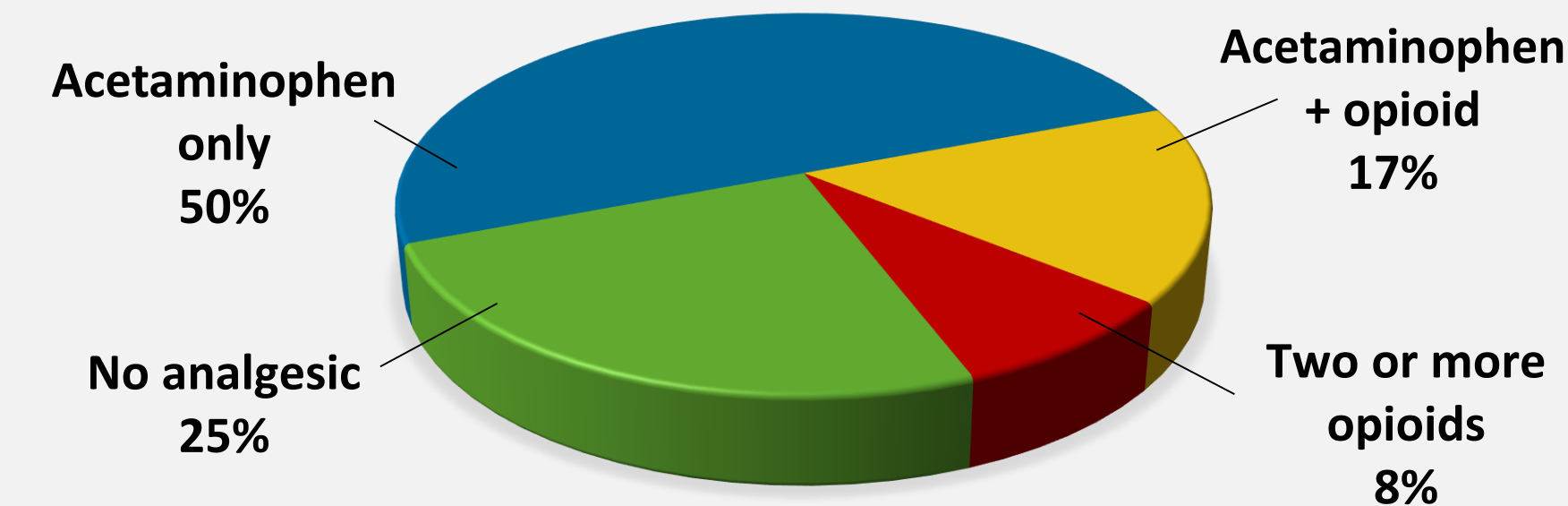
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Results

- 11 out of 12 patients (91.7%) experienced some degree of pain
- 9 out of 12 patients (75%) received at least one analgesic medication daily

Figure 1: Percentage of Analgesic Use



- 7 patients experienced no or mild pain (PAINAD Score: ≤ 3)
- 5 patients experienced moderate pain (PAINAD Score: 4-6)
- The type of analgesic medication (acetaminophen, opioid \pm acetaminophen) did not differ by pain group ($X^2(1)=.23$, $p=.64$)

Table 2: NPS measures between groups controlling for disease severity

	Mild Pain Mean \pm SD (N=7)	Moderate Pain Mean \pm SD (N=5)	F(1,9)	p-value
NPI- Anxiety	2.1 \pm 2.0	7.0 \pm 5.4	7.1	.03
NPI- Appetite	0.9 \pm 1.5	8.0 \pm 4.9	12.8	.006
NPI- Total	22.0 \pm 10.5	40.6 \pm 16.9	5.6	.04

NPI= Neuropsychiatric Inventory

Conclusions

- Pain may be inadequately managed in patients with moderate-to-severe AD
- Patients with higher levels of pain demonstrated more anxiety, appetite disturbances, and overall NPS
- Given the negative impact of these NPS on quality of life, pain management should be re-evaluated in those with these NPS