

Medicare Evidence Development
and Coverage Advisory Committee

**Beta Amyloid Positron Emission Tomography (PET) in Dementia
and Neurodegenerative Disease**

January 30th, 2013

David Kuhlmann, MD, D, ABPN

Board Certified Neurologist

Bothwell Regional Health Center

Disclosures

- I have no financial or intellectual conflict of interests.
- I am an employed physician at *Bothwell Regional Health Center*.
 - I paid for my own trip and took a day off work.

Current National Coverage Indications 220.6.1 3

- Medicare covers FDG PET scans for either the differential diagnosis of fronto-temporal dementia (FTD) and Alzheimer's disease (AD) under specific requirements; OR, its use in a Centers for Medicare & Medicaid Services (CMS)-approved practical clinical trials.
 - considered reasonable and necessary in patients with a recent diagnosis of dementia and documented cognitive decline of at least 6 months, who meet diagnostic criteria for both AD and FTD, but the cause of the clinical symptoms remains uncertain.

Current National Coverage Indications 220.6.1 3

- Date of onset of symptoms;
- Diagnosis of clinical syndrome (normal aging; mild cognitive impairment (MCI); mild, moderate or severe dementia);
- Mini mental status exam (MMSE) or similar test score;
- Presumptive cause (possible, probable, uncertain AD);
- Any neuropsychological testing performed;
- Results of any structural imaging (MRI or CT) performed;
- Relevant laboratory tests (B12, thyroid hormone); and,
- Number and name of prescribed medications.

Question 1 a

- 1 a. How confident are you that there is adequate evidence to determine whether or not PET imaging of brain beta amyloid changes health outcomes (improved, equivalent or worsened) in patients who display early symptoms or signs of cognitive dysfunction?

1
Low
Confidence

2

3
Intermediate

4

5
High
Confidence

- No study asked whether patients do better as a result.
 - Institute for Clinical and Economic Review, December 12th, 2012

Question 1 b

- 1 b. If there is at least intermediate confidence (mean score ≥ 2.5 in question 1 a), how confident are you that PET imaging of brain beta amyloid improves health outcomes in patients who display early symptoms or signs of cognitive dysfunction?

1

Low
though I think
Confidence

2

3

Intermediate

4

5

High
the likelihood
Confidence

- “Although I think a positive amyloid imaging study would increase the likelihood that the person will decline, that is not known for certain,” said David Knopman, MD, Department of Neurology, also at Mayo Clinic Rochester, Minnesota. “So, I would definitely not do an amyloid scan routinely.”

<http://www.medscape.com/viewarticle/762347>

Question 2a

- 2a. How confident are you that there is adequate evidence to identify patient characteristics that predict improved health outcomes of patients who undergo PET imaging for beta amyloid?

1	2	3	4	5
Low		Intermediate		High
Confidence				Confidence

- “The scan has not been shown to be useful in predicting the development of dementia or any other neurologic condition, nor has usefulness been shown for monitoring responses to therapies.
 - Brain Amyloid Imaging — FDA Approval of Florbetapir F18 Injection, Lucie Yang, M.D., Ph.D., Dwaine Rieves, M.D., and Charles Ganley, M.D., N Engl J Med 2012; 367:885-88.

What if Florbetapir test is negative?

- While beta amyloid on autopsy may confirm the diagnosis of Alzheimer's Disease, it is not known whether beta amyloid is the cause of all cases of Alzheimer's Disease or even the cause of symptoms.
- “A negative scan result does not preclude the development of brain amyloid in the future.”
 - Amyvid Safety Information
- **If the test is negative, it doesn't rule out the presence or development of Alzheimer's Disease**

What if Florbetapir test is positive?

- “A positive Amyvid scan indicates moderate to frequent amyloid plaques are present; this amount of amyloid plaque is present in patients with Alzheimer’s Disease, but may also be present in patients with other types of neurologic conditions and in older people with normal cognition.”
 - FDA Approves Amyvid™ (Florbetapir F 18 Injection) for Use in Patients Being Evaluated for Alzheimer’s Disease and Other Causes of Cognitive Decline, Eli Lilly Press Release, April 2012.
- **If the test is positive, it doesn’t confirm Alzheimer’s Disease**

Cost of Florbetapir Scans

- **\$3,000 to \$6,000 for one scan**
 - Insurance Coverage of AD Diagnostics? Not Without Better Data, Alzheimer Research Forum, 12/15/12. <http://www.alzforum.org/new/detail.asp?id=3350>
- **\$3.750** at Mount Sinai Medical Center in New York
 - “For Alzheimer’s Detection, Advances Outpace Treatment Options,” New York Times, November 16th, 2012
http://www.nytimes.com/2012/11/16/health/for-alzheimers-detection-advances-outpace-treatment-options.html?smid=fb-share&_r=0

End Result of *Denying* Reimbursement for Florbetapir Testing

- For Alzheimer's Disease Research, there are already many federal (National Institute of Health, National Institute on Aging, etc.) and private (Alzheimer's and Brain Research Center, etc.) sources of funding.
- By voting against reimbursement for Florbetapir Testing, CMS resources would remain focused on the ***Clinical Management of the patient with Alzheimer's Disease*** rather than shifting money toward diagnosis and research.

“For Alzheimer’s Detection, Advances Outpace Treatment Options,”

New York Times, 11/16/12

- “The Jimenezes have struggled ever since to deal with this devastating news. They are confronting a problem of the new era of Alzheimer’s research: The ability to detect the disease has leapt far ahead of treatments. There are none that can stop or even significantly slow the inexorable progression to dementia and death.”
- “While federal law prevents insurers and employers from discriminating based on genetic tests, it does not apply to scans. People with brain plaques can be denied long-term care insurance.”
- “He worries about the future and how they will survive financially. He wonders if it might have been better not to know the diagnosis. ‘It is financially, emotionally and spiritually draining,’ Mr. Jimenez said. “Everything hangs by a thread.”

Conclusion

