A novel approach to dementia

High-resolution $^1$H MRI of the human hippocampus performed at 21.1 T

Demonstrating the first high-resolution MRI of human hippocampal brain sections acquired at 21.1 T (900 MHz), this comparison presents hippocampal sections: a control (figure, A) vs a specimen with hippocampal sclerosis (figure, B).1,2

A 92-year-old woman showed steady cognitive decline with agitation and intermittent delusion (no seizures) over an 8-year period. Family history was positive for dementia (mother and sister). Despite marked dementia (Mini-Mental State Examination score 12/30), neurologic examination was negative. Pathologic evaluation revealed the diagnosis of hippocampal sclerosis (figure, B).

Control images display strong cell layer delineation, with hippocampal regions (CA 1-3) clearly visible. Sclerotic images lack hippocampal definition and display significantly reduced volume and cell layer compression.

K.J. Schweitzer, MD, Jacksonville, FL; P. Foroutan, MS, Tallahassee, FL; D.W. Dickson, MD, D.F. Broderick, MD, Jacksonville, FL; U. Klose, PhD, D. Berg, MD, Tübingen, Germany; Z.K. Wszolek, MD, Jacksonville, FL; S.C. Grant, PhD, Tallahassee, FL

Disclosure: Dr. Schweitzer has received research support from the German Research Foundation (DFG) [Robert and Clarice Smith Fellowship], Ms. Foroutan and Dr. Broderick report no disclosures. Dr. Dickson serves on the editorial boards of American Journal of Pathology, Journal of Neuropathology and Experimental Neurology, Brain Pathology, Neurology of Aging, Journal of Neurology Neurosurgery and Psychiatry, Annals of Neurology, and Neuropathology, and receives research support from NIH [PS0-AG25711 [CL], PS0-AG16574 [CL], PS0-NS04256 [PI], PO1-AG17216 [PI], PO1-AG03949 [Co-I], and R01-AG15866 [Co-I]]. Dr. Klose receives research support from German Research Foundation (DFG); and holds stock in Siemens, Deutsche Telekom, and SAP. Dr. Berg serves on scientific advisory boards for Novartis, UCB, SCHWARZ PHARMA, GlaxoSmithKline, and Teva Pharmaceutical Industries Ltd.; has received funding for travel and/or honoraria for speaking and educational activities from Lundbeck, Inc., Novartis, GlaxoSmithKline, UCB, SCHWARZ PHARMA, Merck Serono, and Johnson & Johnson; and receives research support from Janssen, Teva Pharmaceutical Industries Ltd., Michael J. Fox Foundation, BmBF, and dPV (German Parkinson’s disease association). Dr. Wszolek serves as Co-Editor-in-Chief of Parkinsonism and Related Disorders, Co-Editor-in-Chief of the Polish Edition of Neurology, Regional Editor of European Journal of Neurology, and on the editorial boards of Neurologia i Neurochirurgia Polska, Advances in Rehabilitation, Medical Journal of the Rzeszow University, and Clinical and Experimental Medical Letters; holds and has contractual rights for receipt of future royalty payments from patents; receives royalties from publishing Parkinsonism and Related Disorders (Elsevier, 2007, 2008, 2009), Polish Edition of Neurology (Medycyna Praktyczna, 2007, 2008, 2009) and European Journal of Neurology (Wiley-Blackwell, 2007, 2008, 2009); receives research support from Allergan, Inc., Pacific Alzheimer Research Foundation (Canada) [C06-01], Morris K. Udall PD Research Center of Excellence (NIH/NINDS P50 NS40256), Mayo Clinic Florida, Research Committee CR program; NIH [NIA PO1AG017216-1 (Co-I); NIA R01AG015866-1 (Co-I); NINDS P50NS 40256 (Co-I) and CIHR [P 121849 (Co-I)]. Dr. Grant receives research support from National Science Foundation and Florida State University.

Address correspondence and reprint requests to Dr. Katherine J. Schweitzer, Mayo Clinic Florida, 4500 San Pablo Road, Jacksonville, FL 32224; schweitzer.katherine@mayo.edu

A novel approach to dementia: High-resolution 1H MRI of the human hippocampus performed at 21.1 T
Neurology 2010;74;1654
DOI 10.1212/WNL.0b013e3181df09c9

This information is current as of May 17, 2010

Updated Information & Services
including high resolution figures, can be found at:
http://n.neurology.org/content/74/20/1654.full

References
This article cites 2 articles, 0 of which you can access for free at:
http://n.neurology.org/content/74/20/1654.full#ref-list-1

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
All Cognitive Disorders/Dementia
http://n.neurology.org/cgi/collection/all_cognitive_disorders_dementia
MRI
http://n.neurology.org/cgi/collection/mri

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.neurology.org/about/about_the_journal#permissions

Reprints
Information about ordering reprints can be found online:
http://n.neurology.org/subscribers/advertise

Neurology © is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright . All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.