INTRODUCTION

There is some evidence that atrophy of certain medial temporal lobe structures may be present at early stages of cognitive decline, before dementia occurs. We tested this hypothesis by measuring the hippocampus, entorhinal cortex, and temporal lobe in a sample from a community-sampling population of elderly Latinos with various levels of cognitive impairment (SALSA, ongoing longitudinal survey of the incidence and prevalence of cognitive impairment). Subjects were taken from the Sacramento Area Latino Study Center for Neuroscience, University of California, Davis, CA.

METHODS

Subjects were divided into four groups based on neuropsych test scores:

1. Normal
2. Cognitively impaired (cog imp)
3. Cognitively and functionally impaired, not demented (cog + fxn imp)
4. Demented

Neuropsychological Testing
Subjects received a battery of tests including 3MSE, verbal delayed recall, and IQCODE, a measure of function.

Subjects will be tested on a battery of cognitive tests yearly for three years, hence reducing in hippocampal and temporal lobe volumes for crossover to dementia is likely in some subjects. Thus, the predictive power of functional impairment is present in addition to mild cognitive decline. Entorhinal cortex volumes do not differ by group. Hippocampal, temporal lobe, and entorhinal cortex volumes correlate with 3MSE, even when controlling for age and education (p < .001 for all).

RESULTS

- Hippocampal and temporal lobe volumes differ significantly by group (p = .002, p = .015, respectively)
- Cog + fxn imp and demented groups had significantly smaller hippocampal and temporal lobe volumes than normal and cog imp groups (p < .001 for all)
- Entorhinal cortex volumes do not differ by group.
- Hippocampal, temporal lobe, and entorhinal cortex volumes correlate with 3MSE, even when controlling for age and education (p < .001 for all)

CONCLUSIONS

- Reduced hippocampal, temporal lobe, and entorhinal cortex volumes do correlate with cognitive decline.
- Reduction in hippocampal and temporal lobe volumes are not apparent until mild functional impairment is present in addition to mild cognitive decline.
- Failure to detect reductions in volume in the cognitively impaired group may reflect:
  - the very mild cognitive decline in this group
  - the very mild functional impairment of this group
  - minor changes other than reductions in hippocampal, temporal lobe, and entorhinal cortex may be related to very mild cognitive impairment

FUTURE DIRECTIONS

Subjects will be tested on a battery of cognitive tests yearly for three years, hence crossover to dementia is likely in some subjects. Thus, the predictive power of reductions in hippocampal and temporal lobe volumes for crossover to dementia remains to be determined.

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