Assessment of anomalous sentences repetition test

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Abstract

Use of Anomalous Sentences Repetition Test (ASRT) in 16 patients with diagnosis of dementia of Alzheimer's type, 16 normal elderly and 18 patients with depression revealed no difference in the age adjusted scores between the three groups, suggesting that it is not a good test for diagnosing dementia or differentiating dementia from depression.

Sentence repetition tests in neurophysiological assessment has been in existence since 1943.¹ Some sentences that are syntactically complex, meaningless or very long, particularly discriminate between patients with cerebral damage and normal controls.²

Based on these observations, a new Anomalous Sentences Repetition Test (ASRT) has been developed.³ According to the author the test is a simple one that takes less than five minutes to administer and is designed for use not only by doctors but clinical psychologists and other community workers, such as health visitors and community psychiatric nurses. The manual states that validation studies have been carried out and the results confirm that the test is not only able to differentiate between dementing and non-dementing illness, but is said to provide evidence for the existence or otherwise of cognitive impairment. We therefore set up a small study to validate the test using patients attending the memory clinic.

Method

We studied 16 patients diagnosed with Alzheimer's disease (SDAT), 16 normal elderly subjects and 18 patients with clinical depression. The diagnosis of SDAT was made in our memory clinic using clinical and laboratory assessment, as well as on a battery of psychometric tests. In addition, the diagnosis had been confirmed during a follow up period varying from one to two years. The normal elderly subjects were volunteers who had no clinical evidence of mental impairment and had no risk factors for vascular disease. The depressed elderly patients were those in whom depression had been diagnosed clinically and in whom treatment with anti-depressants produced beneficial effect. Each patient, in all three groups, had a Mini-mental State examination,⁴ Kendrick cognitive tests⁵ (Object learning Test (KOLT) and Digit Copying Test (KDCT)), NART⁶ to calculate IQ and the Anomalous Sentences Repetition Test.

For the administration of the Anomalous Sentences test the patient was given the following verbal instructions: "I am going to read you

some sentences, one at a time. Listen carefully to each sentence and repeat it immediately after I have stopped reading. The sentence may be quite meaningless and the usual order of words may be changed. However, your task is to simply repeat word for word whatever I have said, as soon as I've finished reading. Do you understand? (If the patient has any questions, the tester answers at this stage.) Are you ready? First I will read you some practice sentences. Here is the first one . . ."

Three of the examples of practice sentences are: (1) "This is the street to the new building". (2) "The stream burns the hair seriously now". (3) "The garden shows the rose happily the clouds".

After reading the two practice sentences, six sentences were read and the total number of errors recorded. The errors may be classified as an error of omission (in which a word is missed out), a transposition (a word is repeated correctly but in a wrong position), a phonetic confusion (an incorrect word that is phonetically or acoustically related to the target word), an addition of a new incorrect word to the sentence without replacing a correct word, a substitution of a new incorrect word in the sentence, replacing a correct word and a tense error (a change in the tense of the verb in the sentence). The error score was obtained by adding the errors in each of the six test sentences.

The scores obtained on the Kenrick cognitive tests for the elderly and on the ASRT were converted to age-scale quotients using the recommended tables.^{3,5}

Results

Results obtained for the three groups are listed in tables 1 and 2. In the SDAT group the

Table 1 Comparison of the main characteristics of patients with SDAT with those of the normal group

	SDAT		Normal controls		P value
Age	80.6	(5.7)	77.8	(4.7)	=0.13
MMSE	20.3	(4.3)	29.4	(0.5)	<0.0001
KOLT	70.6	(10.0)	111.8	(11.8)	<0.0001
KDCT	90.3	(22.6)	109.1	(17.0)	<0.01
NART	112.1	(9.4)	114.9	(8.3)	=0.01
ASRT	105.5	(12.1)	110.3	(16.2)	=0.35

Table 2 Comparison of SDAT group with patients with depression

	SDAT (N = 16)		Depression (N = 18)		P value
Age	80.6	(5.7)	76.70	(6.83)	NS
NART	112.1	(9.4)	113.83	(7.99)	NS
KOLT	90.3	(22.6)	93.83	(15.76)	NS
MMSE	20.3	(4.3)	27.88	(1.56)	p < 0.0001
ASRT	105.5	(12.1)	115.5	(15.4)	NS

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results obtained on the mini-mental state examination correlated significantly with the score obtained on KOLT ($r = 0.56$; $p = 0.032$) and KDCT ($r = 0.45$; $p = 0.08$) but no significant correlation was found between the score on MMSE and ASRT ($r = 0.05$; $p = 0.85$).

Discussion

This small study does not validate the results obtained by David Meeks.³ Some of our elderly patients with mild to moderate degree of dementia achieved an age-transformed score on ASRT similar to that obtained by some of the normal elderly volunteers.

The insignificant difference between the score obtained on ASRT by patients in the SDAT and the normal group and the lack of significant correlation between the results obtained on ASRT and MMSE in patients

with SDAT casts doubt on the usefulness of ASRT as a test for providing evidence for the existence of cognitive impairment.

The lack of significance between age adjusted scores of patients with depression when compared with those with dementia suggest that it is not a good test for differentiating between dementing and non-dementing illness.

- 1 Zangwell OL. Clinical tests of memory impairment. *Proc Roy Soc Med* 1943;37:8-19.
- 2 Newcombe F, Marshall JC. Immediate recall of "sentences" by subjects with unilateral cerebral lesions. *Neuropsychologia* 1967;5:329-34.
- 3 Weeks DJ. *The Anomalous Sentences Repetition Test*. Windsor: NFER-Nelson 1988.
- 4 Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *J Psychiat Res* 1975;12:189-98.
- 5 Kenrick K. *Kenrick Cognitive tests for the elderly*. Windsor: NFER-Nelson 1985.
- 6 Nelson HE. National Reading Test (NART). Windsor: NFER-Nelson 1982.