Shimane J. Med. Sci. Vol. 1, pp. 40—48, 1977

Some Psychological Aspects of Senile Dementia*

(psychological tests/senile dementia)

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(Received October 15, 1977)

Summing up the discussion concerning senile dementia in terms of personality, the following symptoms and signs are noted.

1) Passivity and defensiveness to one's surroundings. The Rorschach Test indicates that the dementia group reflects an apparent weakness in accommodating oneself to the immediate environment. This is to say that they have difficulty in associating effectively with people.

2) Thinking faculties are narrowed and stereotyped. Defective information processing is also seen, but this can be said of the aged in general.

3) Lack of emotional control, passivity and inattentiveness to emotional stimuli.

4) Progressive loss of intellectual faculties. This is quite noticeable among senile dementia patients. The loss of intellectual faculties is not sudden or complete, but rather reflects a gradual erosion over a period of time. Compensatory mechanisms in the brain might be the main cause of this symptom.

The majority of aged persons affected with mental and physical illnesses are found to be suffering from senile dementia. In the last few years, many psychological tests, including intelligence tests, have been conducted on this growing segment and the data obtained are utilized in applied psychiatry. The application of psychological tests to the aged is not a simple task, however. The subjects are often unable to endure a long period of testing(1). Furthermore, testing patients with senile dementia is a complex task. It is, therefore, not surprising that there is an absence of proper psychological tests for this particular group of people.

In this study of the aged, the less demanding Hasegawa Dementia Test Scale was used. The Kohs Block Design test, an intelligence test, and the Rorschach Test, a personality test, were also employed.

These three psychological tests were given to aged subjects, both healthy and dementia groups, to identify characteristics specific to senile dementia in terms of personality, and also to correlate psychological findings with morphological changes in their brains(2, 3).

* A part of this experimental research paper constitutes the Okamura's graduation thesis for Sacred Heart University.

MATERIALS AND METHODS

Three groups of subjects were selected in accordance with standard clinical experimental procedures.

Group A : Dementia Group. (Patients with cerebrovascular dementia, simple senile deterioration, and Alzheimer's disease)
14 subjects (8 males, 6 females), average age : 67.2 yr.

Group B : Non-dementia Group. (Patients with depressive and functional disorders, non-senile dementia)
11 subjects (5 males, 6 females), average age : 67.6 yr.

Group C : Healthy Group from a Home for the aged, Wakoen in Shimane Prefecture ; (will be referred to simply as the "Healthy" group)
16 subjects (9 males, 7 females), average age : 70.8 yr.

The following psychological tests were given to these groups.
Hasegawa Dementia Test Scale
Rorschach Test
Kohs Block Design test

RESULTS

A statistical test (t-test)(4) was used to determine the statistically significant

TABLE I. *Statistical Tests of the Hasegawa Dementia Test Scale*

Dementia group vs. Non-dementia group

	Dementia		Non-dementia
Orientation**	1.02	<	2.75
Memory, remote**	1.33	<	2.50
Common sense*	1.47	<	2.62
Arithmetic**	1.43	<	2.91
Total points**	14.57	<	28.23
	**p < 0.01		*p < 0.05

Non-dementia group vs. "Healthy" group

	Non-dementia		"Healthy"
Memory, remote*	2.50	>	2.04
	**p < 0.01		*p < 0.05

Dementia group vs. "Healthy" group

	Dementia		"Healthy"
Orientation**	1.02	<	2.57
Memory, remote*	1.33	<	2.04
Common sense	1.47	<	2.58
Arithmetic**	1.43	<	2.44
Memory (short-term retention)*	1.43	<	2.44
Total points**	14.57	<	26.81
	**p < 0.01		*p < 0.05

differences among the results of the Hasegawa Dementia Test Scale, the Rorschach Test, and the Kohs Block Design test. Charts showing these comparisons appear later.

In the Hasegawa Dementia Test Scale experiment, the data were divided into five sub-tests. Adding all the points (Table I), tests on the statistically significant differences were conducted for (a) the dementia group vs. the non-dementia group, (b) the non-dementia group vs. the "healthy" group, and (c) the dementia group vs. the "healthy" group.

The results indicate that, except for memory (short-term retention), statistically significant differences are seen in all categories in (a), whereas all six categories were significantly different for (c). For (b), a significant difference was obtained only for remote memory. Therefore, statistically significant differences can be seen in comparing the dementia group with the two other groups.

In the Rorschach Test experiment, no statistically significant difference was seen in the non-dementia group vs. the "healthy" group. The differences obtained in comparing the dementia group with the other groups, were similar to those noted in the Hasegawa Dementia Test Scale experiment (Table II).

TABLE II. *Statistical Tests of the Rorschach Test*

Dementia group vs. Non-dementia group

	Dementia		Non-dementia
FC*	0.07	<	0.55
F%*	77.07	>	63.36
F+%**	39.50	<	74.27
R+%*	39.21	<	58.45
VIII+IX+X/R%*	25.57	<	38.14
	**p < 0.01		*p < 0.05

Dementia group vs. "Healthy" group

	Dementia		"Healthy"
Dd%*	1.64	>	0.13
FC**	0.07	<	0.38
F+%**	39.50	<	62.13
P%*	18.14	<	31.69
	**p < 0.01		*p < 0.05

The statistical test results for the Kohs Block Design test resembled the results of the Hasegawa and Rorschach Test experiments ; that is, no statistically significant differences for the non-dementia vs. the "healthy" group, but significant differences for the dementia group vs. the non-dementia group and the dementia group vs. the "healthy" group (Table III).

TABLE III. *Statistical Tests of the Kohs Block Design Test*

Dementia group vs. Non-dementia group

	Dementia		Non-dementia
Kohs Block Design Test IQ	33.21	<	66.78
	** $p < 0.01$		* $p < 0.05$

Dementia group vs. "Healthy" group

	Dementia		"Healthy"
Kohs Block Design Test IQ	33.21	<	70.13
	**$p < 0.01$		*$p < 0.05$

Correlation between Kohs Block Design Test and Hasegawa Dementia Test Scale

		Dementia group	Non-dementia group	"Healthy" group
Kohs'	Hasegawa's	0.2342	0.6575	0.5305

$r < 0.4$

DISCUSSION

First, the various results of the Rorschach Test and the results of this study will be considered.

Second, the statistically significant differences in the results of the Hasegawa Dementia Test Scale, Rorschach Test, and Kohs Block Design test in this experiment will be compared.

The correlation between the Kohs Block Design test and the Hasegawa Dementia Test Scale was calculated (Table III) and will be discussed atthe end of this section.

A Comparison of the Various Results of the Rorschach Test and This Study (5)

In general, the response productivity, or R, is low. According to Kataguchi (6), the R in the average Japanese adult is 20 to 45 (average: 25). However, aged Japanese score lower, and the dementia senilis scores are significantly lower. This result is characteristic of senility with poverty of response, defensive and inhibitive attitudes toward the test, and impaired thought.

An interesting fact is observed in the form response percentage (F%). Although an adult's score should be 50% or less on the average, the dementia group scored in the 70% range. This characterizes the stereotype of senile psychosis.

The "normal" aged groups are in the 70% range in the F+%. Since the intelligence level and the emotional state are the main factors in determining F+%, the dementia group's score is clearly lower than that of the other groups.

Human movement responses, or M, are positively correlated with creative imagination and the level of intelligence. The aged tend to have, on the whole, sluggishness of thought and inattentiveness except to immediate personal needs.

The scores of color determinants, FC and CF, are very low. The demenia senilis group's scores are lower; thtat is, the symptoms of senility include narrowing of interests and apathy (Tables IV a and b).

TABLE IVa. *Various Results of the Rorschach Test*

	Klopfer	Parados and Friend		Chesrow et al.	Arai	Kawai et al.
Average age	73.5	61–70	71–80	76.3	60–90	72.7
Number	50	12	10	30		18
R	14.1	23	20	15.1	23	16.2
W%	high	52%	43%	31%	56.2%	
D%	low	46%	55%	50%	38.8%	
Dd%		2%	2%	17%		
S%					4.2%	
F%				55%	44.5%	53.8%
F+%					77.8%	74.2%
M	1.4	1.9	1.8	1.1	3.71	1.3
FM	3.2	5.0	5.1	2.8	5	2.9
m	0.1			0.1		
FC	0.3	1.7	0.2	0.7		1.2
CF	0.7	1.6	0.2	0.4		
CF+C						0.9
C		0.2	0.3	0.2		
ΣC						1.9
A%	high	45%	49%	47%		

TABLE IVb. *Various Results of the Rorschach Test*

	"Healthy"* group	Non-dementia	*Dorken and Kral (dementia senilis)	Kawai et al. (dementia senilis)	Dementia *
Average age	70.8	67.6	76.3	76.5	67.2
Number	16	11	30	18	14
R	12.81	15.27	15.1	12.1	15.71
W%	55.13%	52.64%	31%		49.29%
D%	39.63%	44.36%	50%		40.71%
Dd%	0.75%	1.18%	17%		5.71%
S%	3.44%	1.36%			2.71%
F%	67.56%	63.36%	55%	73.1%	77.09%
F+%	62.13%	74.27%		58.8%	39.5 %
M	0.63	1.27	1.1	0.6	0.5
FM	1.31	1.36	2.8	2.0	1.43
m	0.06	0.09	0.1		0.07
FC	0.38	0.55	0.7	0.3	0.07
CF			0.4		
CF+C	1.06	1.82		0.2	1.21
C			0.2		
ΣC	1.44	2.23		0.4	1.34
A%	63.56%	56.27%	47%		65.86%

*Present investigation.

Comparison between the Rorschach Test(7) *and This Study in Senile Dementia*

Here, also, the dementia group's R is lower than the "healthy" group ; lack of mental productivity and defensive, obstructive attitudes to the test are present.

A statistically significant difference is seen in the "healthy" group's W% and in the dementia group's D%. These results show that patients with dementia senilis tend to see portions of the given stimuli rather than the stimuli as a whole.

TABLE Va. *Understanding of Senile Dementia by the Rorschach Test*
Responses, initial-response time, and range of responses

Understanding of senile dementeia by the Rorschach Test			Author		
	Dmentia group	Normal group		Dementia group	"Healthy" group
Hasegawa's	11.0	29.10	Hasegawa's	14.57	26.81
R	12.67	13.14	R	15.71	12.81
Rej.	3.64	2.33	Rej.		
T/R_1 non. c	15.65	16.60	T/R_1 non. c	20.50	17.75
T/R_1 color *	17.95	21.84	T/R_1 color	27.64	26.56
W%**	49.25	61.98	W%	49.29	55.13
D%*	45.90	35.00	D%	40.71	39.63
S%	2.65	2.44	S%	2.71	3.44
Dd%	2.25	2.20	Dd%	5.71	0.75
W**	0.77	1.89	W	1.00	1.63

**p < 0.01 *p < 0.05

TABLE Vb. *Understanding of Senile Dementia by the Rorschach Test*
Response determinants

Understanding of senile dementia by the Rorschach Test			Author		
	Dementia group	Normal group		Dementia group	"Healthy" group
Hasegawa's	11.0	29.10	Hasegawa's	14.57	26.81
M	0.35	1.23	M	0.50	0.63
FM*	0.35	0.97	FM*	1.43	1.31
FK	0.04	0.04	FK	0	0
F_{c+c}*	0.14	0.41	F_{c+c}	0.21	0.06
$F_{c'+c'}$*	0.04	0.72	$F_{c'+c'}$	0.71	0.69
FC*	0.21	1.08	FC**	0.07	0.38
CF+C	0.35	0.20	CF+C	1.21	1.06
ΣC	0.56	0.67	ΣC	1.34	1.44
(VIII+IX+X)/R%*	25.10	31.68	(VIII+IX+X)/R%	25.57	33.01
F%*	91.50	65.96	F%	77.07	67.56
F+%**	35.55	53.08	F+%**	39.50	62.13
R%	98.95	94.44	R%	88.93	91.06
R+%**	38.90	60.86	R+%	39.21	54.31

**p < 0.01 *p < 0.05

TABLE Vc. *Understanding of Senile Dementia by the Rorschach Test*
Response-contents, popular response

Understanding of senile dementia by the Rorschach Test			Author		
	Dementia group	Normal group		Dementia group	"Healthy" group
Hasegawa's	11.0	29.10	Hasegawa's	14.57	26.81
A%	68.85	66.40	A%	65.86	63.56
H%	17.15	13.00	H%	12.93	13.44
At%	4.70	2.52	At%	1.71	1.62
Pl%*	2.20	10.48	Pl%	5.57	5.94
P(%)*	2.20(17.36)	4.40(30.75)	P(%)*	4(18.14)	3.88(31.69)
CR*	2.30	3.12	CR	4.12	4.44

$^{**}p < 0.01$ $^{*}p < 0.05$

In F%, a statistically significant difference is obvious between the dementia group and the non-dementia group. The latter shows a significantly lower value. This indicates that in dementia senilis there is a progressive loss of intellectual faculties. The dementia group's F% value is significantly higher than the non-dementia group. This is to say that the former tends to focus on uniform, less-suggestive objects in the experiment-cards containing multiple items of information.

The "healthy" group in the FC and the dementia group in CF+C show higher statistically significant values than the other groups. Lack of information-selection ability is seen in the dementia group.

The low popular response (P) scores by the dementia group indicate a lack of common sense and of social cooperativeness.

Judging from the comparison charts (Tables 5 a, b and c), the subjects in our dementia group are "better" than those in the "Understanding of senile dementia by the Rorschach Test" since the scores of the former are higher than those of the latter. Not enough statistically significant differences are obtained in this experiment since the range of "healthy" and normal group scores are too narrow.

Statistical Tests on the Hasegawa Dementia Test Scale Experiment

Significant differences are recorded for each comparison group. The differences in memory (memory, remote and memory/short-term retention) should be noted here. The short-term retention test (recalling names of 5 objects shown to the subject, reverse-responding to the given numbers) caused trouble in both the dementia and the non-dementia groups. Impairment of memory is a commonly observed characteristic among the elderly(8, 9), however retention of past events still remains. Although statistically significant differences in remote memory are present for each group, the dementia group lacks such memory. However, it is noteworthy that memory retention is observed in each group, and there is no significant difference in direct-recall among the three groups. Whether the Hasegawa Dementia Test Scale is the proper recent-memory test to be employed for the aged is a question which deserves further investigation.

Also, the chart indicates that there is almost no difference between the non-dementia group and the "healthy" group. Therefore, the Hasegawa Dementia Test Scale is an effective, practical testing-scale to differentiate senile dementia

from other senile mental disorders(10, 11) (Table I).

Statistical Tests on the Rorschach Test Experiment

Dd% A significant difference is seen between the dementia group and the "healthy" group. The former shows lower values ; that is, a tendency to avoid reality, restlessness, inferiority complex, and habit deterioration are some of the characteristics of the dementia group.

FC No differences are seen between the non-dementia group and the "healthy" group. In particular, the FC in the dementia group is low. Progressive loss of mental development, lack of consideration, instable mental state, and improper behavior for a given situation are noted here.

F% The dementia group shows a significantly higher score than the non-dementia group. Although lack of imagination, passiveness, or non-emotionality can be listed as the characteristics of the dementia group, the % value is well over the normal range (25—55%) in each group. The same can be said for the other groups.

F+% Differences are noted between the dementia group and the non-dementia group and between the dementia group and the "healthy" group. The dementia group's score is very poor in the F+%, less than 40%. This group's R is lower than average, as well. Lack of intellectual development and personality disorder can be interpreted as the reasons for these results.

(VIII+IX+X)/R% A significant difference is seen between the dementia group and the non-dementia group. Since the score of the dementia group is near the lower limit of the normal range (25%), progressive loss of information-processing ability and uncertainty may well be the factors affecting this result.

P% Although a difference between the dementia group and the "healthy" group is observed, the two values lie within the normal range (Table II). No further investigation was made.

Statistical Findings in Kohs Block Design Test Experiment

It is clearly shown, by the significant differences between the dementia gruop and the non-dementia group and between the dementia group and the "healthy" group, that dementia is a strong factor in establishing the intelligence level (Table 3). Since there is no significant difference between the non-dementia group and the "healthy" group, the conclusion is reached that no notable intellectual difference exists in non-dementia aged people. Therefore, a progressive loss of intelligence is evident in dementia senilis.

Discussion on the Correlation between Kohs Block Design Test and Hasegawa Dementia Test Scale Experiment

Unlike the Hasegawa Dementia Test Scale, the Kohs Block Design test is not designed to act as a discriminating test. It is, therefore, difficult to obtain a reasonable correlation coefficient here. Each test has its value in a specific field ; the Kohs Block Design test for the IQ, and the Hasegawa Dementia Test Scale for discriminating dementia from other mental disorders. These are the reasons for finding to significant correlation in this experiment (Table III).

We are very grateful to Prof. K. Hasegawa and Dr. K. Inoue, St. Marianna Medical University, Dr. H. Nishigori, Wakoen, Izomo, and Prof. T. Shimoyama, Sophia University. Without their professional advice and encouragement, the research would not have been completed.

Recognition also goes to those people who kindly offered us their assistance which enabled us to complete the research goals successfully.

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