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Hallucinatory-delusional States in the Elderly: Treatment Classification

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Abstract. This paper describes a multi-dimensional study of non-organic hallucinatory states in the over-sixties. The subjects totalled 43 with no signs of obvious dementia or sustained confusion. Eleven biological, socio-psychological factors and 15 aspects of the clinical picture were assessed at the initial interview. Clinical symptoms were followed under medical treatment. Thirty eight subjects were followed for a further one year. One month later these subjects were classified into three groups. Group I, Complete Recovery Group (18 subjects). The characteristics of this group were: same sex ratio, good previous adaptation, high educational level, normal marital state, high rate of precipitating events, good response to treatment, acute onset, vividness and concreteness of the hallucination, fragmentariness of the delusion, high rate of anxiety and psychomotor excitement and good rapport. The course resembled "psychogenic reaction" and at the same time it resembled "organic brain syndrome" in symptoms. A possible interpretation is that under the influence of precipitating factors, "subclinical" cerebral hypofunction due to senility lapsed transiently into "apparent" cerebral hypofunction, leading to acute hallucinatory-delusional state. Group II, Partial Recovery Group (22 subjects). The characteristics of this group were: predominance of females, presence of precipitating events, fair response to treatment and subacute onset. This group was similar to Roth's "late paraphrenia" and Janzarik's Altersschizophrenie. Group III, Refractory Group (3 subjects). The characteristics of this group were: poor response to treatment and chronic onset. Two fell into dementia within one year. The symptoms of two subjects in the refractory group could be interpreted as prodromal symptoms of dementia. Aging reduces the redundancy of cerebral function to cope with the environmental changes. Among the elderly, events in daily life may often become precipitating factors of hallucinatory-delusional states. For the prophylaxis of hallucinatory-delusional states in elderly, serious attention should be paid to the psychological and somatic conditions which precede to these precipitating factors. (Keio J Med 39 (3): 142-158, September 1990)

Key words: non-organic hallucinatory-delusional state, psychogenic reaction, organic brain syndrome, late paraphrenia, late onset schizophrenia

Introduction

The significance of mental health in the elderly is well recognized among countries where the population of aged people is rapidly growing. Dementia is undoubtedly the most important problem and many investigations have been conducted on this issue. However, little attention has been paid to hallucinatory-delusional states. This may be the result of the difficulty in excluding organicity as a defining origin and the controversy on the "schizophrenia" in the elderly. All aged people inevitably suffer

physiological aging of the brain, which makes it extremely difficult, to exclude the organic factor in psychiatric symptoms. The controversy over the concept of definition of "schizophrenia" in the elderly turn out in great deal of confusion in the terminology. Moreover, certain psychosocial hardship, characteristic to aging worsen the psychiatric symptom in the elderly.

In the present study, the hallucinatory-delusional states in the elderly were investigated multi-dimensionally and it aims to elaborate a classification of hallucinatory-delusional states. The nature of the

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hallucinatory-delusional state was also discussed.

Subjects

The subjects were patients referred to the Neuropsychiatric Department of Keio University Hospital from January 1985 to December 1988, Ohizumi Hospital and Central Hospital of Social Insurance in Tokyo. Subjects were selected with the following criteria; 1. presence of delusion and/or hallucination first manifested over 60 years of age, 2. absence of signs of obvious dementia or sustained confusion. The early onset chronic schizophrenia persisting into the sixties was excluded. Subjects that could not be followed for over a month and subjects lacking sufficient data were also excluded.

As showed in Table 1, there were 43 subjects in total: 15 males and 28 females. Twenty seven were either inpatients or outpatients of Keio University Hospital. Sixteen were either inpatients or outpatients of Oizumi Hospital and the Central Hospital of Social Insurance. Mean age ($\pm$ SD) of 43 cases was 69.7 ± 7.3 years. Sex ratio was 1:1.9 (male:female). Twenty one patients were in their sixties, 16 in their seventies, and six over eighty. Before their first medical examination by the author, these 43 subjects had received no treatments for their hallucinatory-delusional states in other hospitals.

Method

At the first medical examination biological, socio-psychological and clinical symptoms were assessed. (see Table 2) In all 43 subjects medical treatment started at initial contact and the clinical symptoms followed. It was observed clinically that considerable number of subjects responded to treatment within one month. So it was convenient and beneficial from clinical point of view to classify these 43 subjects according to the response to treatment after one month. One month later, these subjects could be classified into three groups according to the response to treatment. In each group its nature was discussed. Of seven subjects whom the author could not directly interview, information was obtained from the medical record. For a further one year 38 subjects (13 males 25 females) could be followed. (see Table 3)

For the exclusion of obvious dementia, besides the clinical pictures, the Hasegawa Dementia Scale, brain CT-scan and EEG were administered. The Hasegawa Dementia Scale was administered in 35 subjects, none of the subjects showing moderate-severe intellectual deterioration. In 33 subjects brain CT-scan was taken. In 32 subjects no gross abnormalities were found. Five subjects revealed mild brain atrophies, which were thought to be non-pathological considering their age. Only one subject showed the low density area in the right hemisphere due to a cerebral infarction in the late

Table 1 Sex and Age Distribution of Subjects.

Age (years)	Sex		Total
	Male	Female	
60–69	5 (cases)	16	21
70–79	8	8	16
80–	2	4	6
Total	15	28	43

mean age ($\pm$ SD): 69.7 ± 7.3 years

male:female=15:28 (ratio=1:1.9)

Table 2 Assessed Factors and Clinical Picture.

Biological and Socio-Psychological Factors	Clinical Picture
1. hereditary load	1. Schneider's first rank symptoms
2. somatotype	2. visual hallucination
3. premorbid personality	3. auditory hallucination
4. sensory deficit	4. neutrality of hallucination
5. somatic conditions	5. concreteness and vividness of hallucination
6. socio-economical status	6. types of delusion
7. marital status	7. content of delusion
8. living situation	8. depressive mood
9. education	9. anxiety
10. premorbid adaptation	10. hypochondriacal complaints
11. precipitating factor	11. insight
	12. rapport
	13. type of onset
	14. duration of illness
	15. change in environment

Table 3 Subjects Assessed.

	Male	Female	Total
Initial Interview	15 (cases)	28	43
One Month Follow-up	15	28	43
One Year Follow-up	13	25	38

forties. In 27 subjects EEG was taken. Six subjects showed a slowing of background activity and a diffuse α pattern. These EEG results are non-specific findings occasionally seen in normal aged and do not suggest the clouding of consciousness. With the clinical pictures and EEG, sustained confusion was excluded.

Results

As of one month later after starting the treatment, as

described above, 43 subjects could be classified into following three groups according to the response to treatment (Table 4).

Complete recovery group (Group I) 18 subjects: nine males and nine females, sex ratio 1:1. In this group the

Table 4 Three Groups of the Hallucinatory-delusional State According to One Month Follow-up.

Group I : Complete Recovery		18 cases (41.9%)			
Group II : Partial Recovery		22 cases (51.1%)			
Group III: Refractory		3 cases (7.0%)			
		I	Group II	III	Total
Sex	Male	9	6	0	15
	Female	9	16	3	28
Sex Ratio (m:f)		1:1	1:2.7	—	
Age	60–69	11	10	0	21
	70–79	5	9	2	16
	80–	2	3	1	6

hallucination and/or delusion disappeared within one month and subjects restored their previous social functionings. They no longer claimed about the hallucination nor the delusion.

Partial recovery group (Group II) 22 subjects: six males and 16 females, sex ratio was 1:2.7. In this group, the hallucination and/or delusion decreased and subjects behaved more calmer.

Refractory group (Group III) 3 female subjects: In this group, the hallucination and/or delusion did not respond to treatment at all.

Complete recovery group

Biological factors (Table 4, 5): As shown in Table 4, with advance of age the number of the subjects in Group I decreased. The group consisted of nine males and nine females, the sex ratio being 1:1, the important characteristic of this group. As for the hereditary load 15 subjects had none (Table 5). Only three subjects had hereditary load in the first rank relatives, one schizophrenia and two affective disorders. No special tendencies in somatotype

Table 5 Biological Factors.

		Group			Total
		I	II	III	
Hereditary Load	+	3	2	0	5
	—	15	20	3	38
	schizophrenia	1	2	0	
	schizoaffective disorder	0	0	0	
	affective disorders	2	0	0	
Somatotype	pyknic	3	7	1	11
	leptosomic	6	8	1	15
	others	9	7	1	17
Premorbid Personality*	schizothym	3	10	2	15
	cyclothym	4	1	0	5
	obsessional	3	4	1	8
	others	8	7	0	15
Sensory Deficit	+	1	5	2	8
	—	17	17	1	35
	visual	0	1	0	1
	auditory	1	3	2	6
	both	0	1	0	1
Somatic Conditions					
Cardio-vascular Disease	+	2	4	2	8
	—	16	18	1	35
Endocrine Disease	+	0	2	0	2
	—	18	20	3	41
Neurological Disease	+	0	1	1	2
	—	18	21	2	41
Neoplasm	+	3	0	0	3
	—	15	22	3	40

* $P < 0.05$

Table 6 Socio-psychological Factors.

		I	Group II	III	Total
Socio-economical Status	bad	1	2	0	3
	normal	8	12	1	21
	good	9	8	2	19
Marital Status	single	1	1	0	2
	divorced, widowed				
	living apart	5	9	2	16
	married	12	12	1	25
Living Situation	alone	6	5	1	12
	with partner	5	7	0	12
	with 3 or more	7	10	2	19
Education	compulsory	7	11	1	19
	high school	5	6	2	13
	college, university	6	5	0	11
Premorbid Adaptation*	poor	0	3	1	4
	fair	8	14	2	24
	good	10	5	0	15
Precipitating Factor*	+	16	11	2	29
	—	2	11	1	14
	somatic	6	3	0	9
	psychogenic, situational	10	8	2	20

* $P < 0.05$

nor special personality traits were found. One had auditory deficit and used a hearing aid in daily life. Five subjects had underlying physical diseases that might have worsened their mental status. Two suffered from cardiovascular diseases such as hypertension, arteriosclerosis and three had neoplasm.

Socio-psychological factors (Table 6): Socio-economical status was above normal in most of the subjects. Only one was living within the Livelihood Protection Law. Seventeen subjects were either previously or currently married and only one had never been married. Two thirds, twelve subjects were not living alone. Eleven subjects graduated from high school or college, university. The education levels were rather high compared to the normal population of their time. No subjects adapted poorly prior to the onset. Sixteen subjects had a range of precipitating factors: six displayed somatic conditions such as injury, infection, surgical operation and ten experienced psychogenic events or situational changes such as family conflicts, the experience of isolation after starting to live alone, death or disease of a near person, resigning their job and moving to a new place.

Clinical pictures (Table 7a, 7b, 8): At least one of the eight symptoms of Schneider's first rank symptoms were observed in eleven subjects. In four subjects visual hallucinations were vivid in nature, such as dolls hanging from the ceiling, flying butterflies, someone taking a bath at the end of the corridor. All of these subjects could give full details of the hallucinations. Auditory hallucinations were found in eleven subjects. Six of them had hallucinations of running commentary and discussing in the third person thought to be Schneider's first rank symptoms. Auditory hallucinations in five subjects were elementary and neutral, such as ringing bells, singing songs — not considered as the auditory hallucination of Schneider's first rank symptoms. As for the characters of the auditory and visual hallucinations 13 were very concrete and vivid. All subjects could recall the hallucinations in detail even after they had disappeared. But no critic was gained.

There were varieties of delusion. Delusion of persecution and reference was the most frequent (13 subjects). Delusion of robbery (five subjects), delusion of being watched (four subjects) and delusion of intoxication (two subjects). Delusion of the guilt, presence of people and grandiosity is included in others in Table 7a.

Table 7a Clinical Picture.

		I	Group II	III	Total	
Schneider's First Rank Symptoms	+	11	13	2	26	
	—	7	9	1	17	
Visual Hallucination	+	4	3	1	8	
	—	14	19	2	35	
Auditory Hallucination (Elementary)	+	11(5)	12(3)	2(1)	25(9)	
	—	7	11	0	18	
Concreteness and Vividness of Hallucination*	+	13	8	2	23	
	—	2	7	1	10	
Types of Delusion	persecution & reference	+	13	14	2	29
		—	5	8	1	14
	robbery	+	5	4	1	10
		—	13	18	2	33
	being watched	+	4	7	0	11
		—	14	15	3	32
	intoxication	+	2	2	1	5
		—	16	20	2	38
	guilt	+	1	2	0	3
		—	17	20	3	40
	presence of people	+	1	1	1	3
		—	17	21	2	40
	jealousy	+	0	4	1	5
		—	18	18	2	38
	others	+	5	4	1	10
		—	13	18	2	33
Content of Delusion*						
more fragmentary		13	7	1	21	
more systematic		5	15	2	22	

* $P < 0.05$

As a number of subjects presented with several types of delusions, there is a discrepancy between the registered delusion and number of subjects. In 13 subjects the content of delusion, although multiple delusions occurred in some subjects, was fragmentary, less worked out and thematic persistence was weak.

As showed in Table 7b, depressive mood was seen in six subjects. Anxiety was common and seen in 16 subjects, hypochondriacal complaints in seven and eleven subjects showed psychomotor excitement.

Almost all of the subjects had no insight, only one subject had the insight on his own hallucination, their rapport was fairly good.

The symptoms emerged acutely in twelve subjects and 16 subjects consulted a psychiatrist in less than one month after onset. Eight of them were admitted to hospital.

As seen in Table 8., 16 out of 18 subjects could be followed one year after the initial contact. Ten subjects

remained without hallucination and/or delusion and two were free of symptoms even without medication. In four subjects hallucination and/or delusion recurred because of discontinuation of treatment. Two subjects died of neoplasm.

Two typical cases from Group I are illustrated below.

Group I [Case 1] ■■■■ 61 year-old female: She came from a family of four children. Her eldest brother died in World War II and her father committed suicide because of his death. Her mother died of the stomach cancer. After graduating from high school and being at home for a few years, she married a farmer at the age of 26 and had three children. She had done well in school and was thought to be a stubborn woman but she thought herself weak and nervous. She had radical gastrectomy four years previously due to stomach cancer. No other remarkable medical history was found.

She lived with her husband, eldest son, daughter-in-

Table 7b Clinical Picture.

		I	Group II	III	Total
Depressive Mood	+	6	4	1	11
	–	12	18	2	32
Anxiety*	+	16	11	1	28
	–	2	11	2	15
Hypochondriacal Complaints	+	7	4	1	12
	–	11	18	2	31
Psychomotor Excitement*	+	11	5	0	16
	–	7	17	3	27
Insight	+	1	1	0	2
	–	17	21	3	41
Rapport	+	18	22	2	42
	–	0	0	1	1
Type of Onset*	acute	12	6	0	18
	subacute	6	11	1	18
	chronic	0	5	2	7
Duration of Illness before the First	<1 month	16	7	0	23
Visit to Psychiatrist**	1–6 month	2	7	0	9
	6 month <	0	8	3	11
Change in Environment (Admitted to hospital)	+	10	14	3	27
	–	8	8	0	16
		(8)	(10)	(3)	(21)

* $P < 0.05$ ** $P < 0.01$ (χ^2 test)**Table 8** Outcome after One Year.

Group I (16/18 subjects)	10 (subject)	no symptoms
	4	recurred
	2	died
Group II (19/22 subjects)	10 (subjects)	unchanged
	2	no symptoms
	4	recurred
Group III (3 subjects)	3	died
	1 (subject)	unchanged
	2	demented

law (Mrs. D) without trouble until a grandson was born three years ago. Since then, she and Mrs. D were opposed to each other concerning the upbringing of the grandson. Gradually their relation got worse causing emotional tension between the two.

Three weeks before psychiatric consultation there was a serious quarrel concerning the precious plate she had lent to Mrs. D at a feast. She found a scratch on the plate

when Mrs. D gave it back to her. After this incident, she felt Mrs. D was saying spiteful things to her. She found a pair of scissors in her folded pyjamas and thought it must have been Mrs. D's doing. Mrs. D no longer let her take care of the grandson. She became somewhat numb and paralysed. She noticed speckles on her limbs. She became thirsty and could not sleep. Mrs. D was learning about cosmetics so she was convinced that Mrs. D was putting poisonous beauty aids into her food. She kept her mouth shut all day especially at meal time so that nothing could enter her mouth. But under Mrs. D's spiritual force, like hypnotism, she was forced to open her mouth and ate the poisoned food against her will. At the same time many curious things started to happen. She heard the loud ticking of a watch, but when she took the watch in her hand it was no longer moving. The curtains fluttered and she saw a man behind them. When she chased him he fled away. She could describe the man in detail. She declared that Mrs. D transmitted an "electric pulse" in order to control her. She could no longer stay in the house otherwise she would be killed. The internist in charge recommended that she move to her sister's place

in another prefecture. On the way to her sister's house in the taxi she perceived the "electric pulse" again. The driver also made a gesture of whisking off "the electric pulse" off his shoulder. She was convinced that the "electric pulse" was still effective even in this area.

After one week of treatment with butyrophenone derivatives her insomnia recovered, the numbness and speckles on her back lessened. She still sometimes felt the "electric pulse" throughout her body but the incidence decreased. She claimed she would not have felt so bad unless something poisonous had got in her body. After one month of treatment she no longer felt the "electric pulse" nor the numbness. Nevertheless, she still kept the conviction of her daughter-in-law poisoning her. After one month stay at her sister's house she went back to her own house. Thereafter, the medication continued and no relapse was seen after one year.

Group I [Case 2] ■■■■ 67 year-old male: He came from a family of five children and there was no remarkable medical nor psychiatric history in his family. As a child he did well at school but was thought to be stubborn and short tempered. After finishing the compulsory education, he worked at a factory. But as this firm went down he changed his job and worked for a transportation company where he finished his career. He retired two years previously and was now living as a pensioner. He got married at the age of 28. Four years previously he lost his wife from cerebral hemorrhage and had moved into a condominium where he was now living with his son. The manager of the condominium reported that he frequently complained about noise from his neighbours. His neighbours were university students and in fact made considerable noise at night with their friends. His son decided to marry a woman but the patient was opposed to this marriage and had recently had many serious quarrels. Two weeks before his admission to the hospital, he made a complaint to the manager about a girl living downstairs that she was psychotic and makes too much noise. He saw a disconnected plug in his room and told his son that something bad was going to happen. He felt a gloomy foreboding. One week later he went to the manager again and complained that "yakuza" had come into his room and was harassing him. The manager went with him to the room but nobody was there. Although nobody was in the room he was talking and bowing as if somebody was there. When the manager said she could not see anyone and waved her hands to show him there was nobody in the room, he was terrified and stopped her. Such behaviour might make "yakuza" angry and retaliate them. At the same night, at midnight he was so distressed and called for help, knocking on the doors of the neighbourhoods and went to the landlord seeking help because there was a hit man after him. He was under the protection of the police for one night and

admitted to the hospital next morning.

He claimed to hear "onkan" (a coinage), something like electric waves because he could hear orders in every situation. For example, it said he had won a lottery that cost six billion yen and had to go and fetch the money. It commented on every single piece of behavior. It knew beforehand what he was going to do. He also claimed a student living next to him named S. was practicing prostitution in his room. The patient could hear the screams of the girls every night.

After five days of treatment with butyrophenone derivatives, the hallucination subsided rapidly and he claimed he could no longer hear "onkan". He could recall all what happened but it happened all in a sudden, so that he was completely perplexed and could not figure out how it happened. Nevertheless he insisted with absolute certainty that at that time it was all true. He saw the "yakuza", could remember faces in detail and heard onkan giving him directions. After a two month admission he went back to his condominium. He is doing well a year later still on medication. He denies hearing "onkan" but still suspicious about the neighbourhood.

Summary of complete recovery group: The characteristics were good response to treatment, the same sex ratio, little hereditary load, no special premorbid personality nor somatotype, high socio-economical status, normal marital state, high level of education, good previous adaptation, presence of precipitating events, concreteness and vividness of the hallucination, fragmentariness of the delusion, depressive mood, high rate of anxiety and psychomotor excitement, good rapport in spite of the absence of insight and acute onset.

Ten of 16 subjects had no hallucination and/or delusion during one year after the onset. Four subjects recurred due to discontinuance of the treatment. Two subjects died of different cause and two subjects could not be followed.

Partial recovery group

Biological factors (Table 4, 5): As shown in Table 4, with advance of the age incidence of the partial recovery group decreased.

The group consisted of six males and 16 females. The sex ratio was 1:2.7, female predominance. This was similar to what was reported in the previous literature. As seen in Table 5, in 20 subjects no hereditary load was found. Schizophrenia was found in first rank relative in two subjects. There was no special tendency in somatotype. As for the premorbid personality, ten subjects were schizothym, one subject was cyclothym, four subjects were obsessional. Others had no marked traits. Five subjects had visual and/or auditory sensory deficit. This was higher than in Group I.

Socio-economical factors (Table 6): Socio-economical status was above normal in 20 subjects. Only two subjects were living under the Livelihood Protection Law. Twenty one subjects had a history of marriage and only one was single. Five subjects were living alone. Eleven subjects had only compulsory education. Three subjects adapted poorly. They had a tendency to have trouble in familial and occupational situation. For instance, they often changed their jobs when younger. Eleven subjects had some precipitating factors: three somatic, eight psychogenic or situational events.

Clinical picture (Table 7a, 7b, 8): As showed in Table 7a, 13 subjects showed Schneider's first rank symptoms. As for the hallucinations, in three subjects had visual hallucination that were vivid and neutral as in Group I. Auditory hallucination in three subjects was considered not of Schneider's first rank symptoms. They were elementary, for example the clicking of clocks. In eight subjects, the character of the hallucination was concrete and vivid.

As for the type of delusions, delusion of persecution and reference was seen in 14 subjects, delusion of being watched in seven subjects and delusion of robbery in four. Delusion of jealousy was seen in four subjects (none in Group I). The content of delusion was more systematic in most of the subjects (15 subjects).

Table 7b showed that depressive mood was seen in four subjects. Half of the subjects showed anxiety. Hypochondriacal complaint was seen in four cases and psychomotor excitement in five subjects.

Only one gained insight to his own state. In spite of these hallucination and delusion, everyone had good rapport.

In half of the subjects, the symptoms emerged subacutely. In six subjects the onset was acute. For the remaining five subjects the onset was chronic. Only seven subjects consulted within one month after the onset (less than in Group I). Fifteen subjects took more than one month before consulting a psychiatrist. Ten subjects were admitted to hospital.

As shown in Table 8, 19 out of 22 subjects could be followed one year after the initial contact. Throughout one year the initial contact, hallucination and/or delusion did not change in ten subjects despite medication. In two subjects the symptoms subsided gradually disappeared after 4–6 months. Four subjects discontinued the medication and the symptoms recurred. In these subjects, none of the symptoms disappeared until one month after restarting treatment. All four subjects, despite response of some degree to treatment followed a similar course as in the first episode. Three subjects died of pneumonia, heart attack and diabetes mellitus respectively.

Two typical cases in Group II are illustrated below.

Group II [Case 3] 73 year-old female: She is a 73 years old woman who had twelve years of education and married at 24. She had five siblings and her youngest sister committed suicide at the age of 24. It is not known if she had any psychotic episodes. In her younger days she was very social but rather tense and nervous about relations with others. She had four children, all married and had seven grandchildren. Her husband was ill due to Parkinsonism and was admitted to hospital for ten years. Therefore, she had been living alone for ten years, her behaviour reportedly was unremarkable until about three months previous when she started telephoning her daughter frequently that she was being watched by a man.

One month before she started telephoning her daughter, she attended the funeral of her brother-in-law and mistake the amount of the money of the obituary gift. She was annoyed when it was pointed out by her relatives that the amount of money was too little. At the same time she became a member against her will of her condominium's tenants' association council.

She had operation for cataracts three years previously and had been going to the ophthalmologist regularly ever since. She kept saying that the doctor attending her was so nice that he might be a good husband for her granddaughter. It was this doctor who was now coming to her condominium and watching her. She can see him watching behind the bush when she goes out to fetch the newspaper every morning. He showed signs that he liked her in spite of her age. She knew when he was coming beforehand, because he sent out signs, sometimes on the telephone. It rang a few times then hung off. On one occasion, he came and knocked on the door by himself, when she opened it he ran off and saw him catch a taxi. She was sure it was him from the back. She visited the hospital he was working at one day abruptly to tell him if he wanted her he could have her. The doctor comes to the room of a widow living downstairs also. It is the couple living on the fifth floor who made the widow the doctor's mistress. It is they who forced her to be the member of the condominium council against her will. The telephone of the patient rings as a sign before he visits the widow. The patient could hear the obscene sexual conversation from downstairs in detail. She believed the doctor was contributing to support the widow in prostitution.

After one month treatment with haloperidol, she no longer actively mentioned the doctor but when questioned about the matter she said she could still detect when the doctor came to see the widow and hear obscene conversations from downstairs but this no longer bothered her.

Group II [Case 4] 82 year-old male: This 82 year-old man came from a family of five siblings and graduated

from high school. His character was nervous, unsocial and had few friends. He owned a factory manufacturing plastic moulds with his son. He married at 28 and had three children living with the eldest son's family with two grandchildren. He now only helped his son from time to time.

About two months previously he started to claim to the family about insulting remarks. He also could hear wireless telegrams from the headquarters of the political party that is opposed to the one he belongs to. He had no remarkable medical history. He had difficulty in hearing two years previously. He used a hearing aid. The wireless telegram seems to know everything going on inside his home. They knew whether he was in the toilet or not. They were communists and followed him everywhere. He is being watched 24 hours. He heard his name being called so he told them to stop, but in vain. It seemed they could take photographs inside his house. It seemed it is only him who can hear the voice, so he is so perplexed. Two years previously they had started renting a room to a man working alone in Tokyo apart from his family. The patient was convinced that he was one of the leaders of an opposition party. There was also a lie detector in the house and a tremendous device that could follow the patient everywhere he went and report to the boarder what he did. The boarder is spying on him because he belonged to an opposition party.

One month after treatment with thioridazine, he felt that although he was being watched he did not care as before. He heard insulting remarks only from time to time.

Summary of partial recovery group: The characteristics were fair response to treatment, predominance of females, low hereditary load, deviance in premorbid personality, normal socio-economical status, normal marital status, educational level normal, fair previous adaptation, presence of precipitating events, richness in psychopathology, subacute onset and tendency to recur if the treatment was discontinued.

Fourteen of 19 subjects continued to have hallucination and/or delusions throughout one year in spite of the treatment.

Refractory group

Biological factors (Table 4, 5): As shown in Table 4, there were female subjects only. As seen in Table 5, no hereditary load was found among first rank relative and there was no special somatotype. All three subjects had marked premorbid personality. Two subjects were schizothym, one obsessional. The two schizothym were very eccentric persons. Two subjects had auditory deficits.

Socio-economical factors (Table 6): In all subjects, the

socio economical status was above normal. All had experience of marriage. Two subjects were living with their family. Two subjects adapted fairly, i.e. occasionally had difficulty in social and familial functioning. One adapted poorly. Two subjects had situational changes as a precipitating factor.

Clinical picture (Table 7a, 7b): As shown in Table 7b, two subjects showed first rank symptoms, and one showed visual hallucination. Two subjects showed auditory hallucinations and one subject showed auditory hallucination of elementary type. Type of delusions considered of persecution and reference, intoxication and jealousy. As content of delusion of three subjects, one was more fragmentary and two more systematic. None had insight and one had bad rapport.

As shown in Table 7b, for two subjects the symptoms chronically developed and their families thought their eccentric character extremed. All of them took more than six months to decide on psychiatric consultation. The course was insidious and all three subjects were admitted to hospital.

These three subjects showed 28.5, 30, 28 points in the Hasegawa Dementia Scale which indicate no moderate-severe intellectual deterioration.

A year after initial contact one subject remained unchanged and two subjects became demented (Table 8).

Two typical cases in Group III are illustrated below,

Group III [Case 5] 77 year-old female: The patient was a 77 year-old woman with eleven years of education who married immediately after graduating from college. She had five children. No particular family history was found. Her character was egoistic, self-indulgent and arrogant. This trait became increasingly prominent with age. Her husband died 10 years previously, since then she had been living with her eldest son, his wife and their grandson. She felt that her daughter-in-law despised her. Two years previously, she made the youngest daughter to live with her in the garden house. She was convinced that she would outlive her daughter-in-law.

Eventually, she claimed that her daughter-in-law persecuted her and stole her money. The family noticed this but paid little attention. They thought it was "her character" that made her say so. She had a slight heart attack and admitted to the hospital. During admission, she refused food and medication because someone was trying to poison her on orders from her daughter-in-law. She told the nurse that she was infected by syphilis and she also heard persecutory voices. She saw something flying around her in colours, but could not describe it.

One month after the treatment with haloperidol she was still convinced that she was being poisoned and refused food. She had to be fed intravenously but tried

to pull out the syringe because it was also poisonous. She kept saying to the nurses that she was sorry for being a danger to them since she might infect them with syphilis. Eight months later she started saying that she must die because she was a war criminal and committed suicide by hanging which was unsuccessful. From that time she fell rapidly into dementia.

Group III [Case 6] 76 years old female: She is a 76 years old woman having nine years of education. She had eleven siblings but only five of them were still alive. Graduating from school she helped at her brother's factory and married at 26. Her character was introverted and unsocial. Her husband worked in a post office. But he embezzled money and dismissed from service, was forced to work for a construction company. She was so worried about the incident that she claimed insomnia but eventually recovered without treatment. Her husband died five years previously and she lived alone ever since. Six months before admission she complained to the manager of the condominium that specific people living upstairs were conspiring to evict her. She was influenced by electrical waves. Insulting remarks were being hurled at the patient. People upstairs were coming to kill her. First she could not understand why they should want to kill her. The only reason she could think of was that they were so envious about her three children, all of them doing well and socially independent. Electric devices were set in the room to harm her. They had sent professional killer to kill her. She could also hear songs insulting her.

After admission to hospital and start of treatment, she could still hear the insulting voices even in the hospital and sometimes searched for the electric device in her room. She was still convinced that professional killer was after her and that he might come into the hospital during the night. One year after treatment, she has good contact but still claimed with certainty that an electric device was influencing her. She was still unable to leave the hospital.

Summary of refractory group: The characteristics in Group III (the refractory group) are: poor response to treatment, all female, eccentric premorbid personality, delusion relatively systematic and chronic onset.

One year after onset, one remained unchanged (hallucination and delusion), 2 subjects fell into dementia.

Statistical investigation

Statistical comparison was carried out between Group I and Group II. As the subjects in Group III were only three, this was excluded from the statistical study.

Statistical significant difference between Group I and Group II was found in premorbid personality, premorbid adaptation, precipitating factors, nature of hallucination,

content of delusion, anxiety, psychomotor excitement, type of onset and duration of illness before seeking psychiatric consultation.

As shown in Table 5.6. 7a.7b., in Group I, 16 subjects (88.9%) had precipitating factors. Premorbid adaptation was good. Anxiety was concurrent in 16 subjects (88.9%) with hallucination and/or delusion, symptoms were emerging acutely in twelve subjects (66.7%), presenting psychomotor excitement in 16 subjects (88.9%) and 16 subjects (88.9%) coming to psychiatric consultation within one month. Constitutional and socio-economical factors suggested that the subjects in this group were quite normal and low risk to hallucinatory-delusional state but once some precipitating factor is encountered it acutely develops symptomatology and as the symptoms are severe seeking psychiatric consultation in short period.

In Group II, precipitating factor was found in eleven subjects (50%) and anxiety was concurrent with hallucination and/or delusion in eleven subjects (50%). Symptoms emerging subacutely in seven subjects (31.8%) and seven subjects (31.8%) coming into psychiatric consultation within one to six month after the onset. Subjects had a significantly high rate of deviation of premorbid personality and poor previous adaptation compared to Group I. Because of low rate of anxiety and psychomotor excitement more time was taken to reach psychiatric consultation.

Although statistical significant difference was not seen, the tendency in each group could be summarized as follows,

Summary of result: Group I (the complete recovery group): Good response to treatment, same sex ratio, low hereditary load, no special premorbid personality nor somatotype, high socio-economical status; normal marital state, high education, good previous adaptation, presence of precipitating events, concreteness and vividness of the hallucination, fragmentariness of the delusion, depressive mood, high rate of anxiety, good rapport in spite of the absence of insight and acute onset.

Fourteen of 16 subjects remained without hallucination and/or delusion one year after the onset. In four subjects, symptoms recurred due to discontinuance of the treatment (tendency to recur). Two subjects died of different causes and two subjects could not be followed.

Group II (the partial recovery group): Fair response to treatment, predominance of female, low hereditary load, normal socio-economical status, normal marital status, normal education level, fair previous adaptation, presence of precipitating events, richness of psychopathology, subacute onset and tendency to recur if the treatment is discontinued.

Three subjects could not be followed, two subjects recovered and although 14 subjects responded to treat-

Table 9 Characteristics in Each Groups.

	Group I	Group II	Group III
Response to Treatment after One Month	good	fair	poor
Response to Treatment after One Year	good	fair	2/3 demented
Sex Ratio	same	predominance of female	female
Premorbid Personality	normal	deviated	deviated
Premorbid Adaptation	good	fair	*
Precipitating Factor	mostly present	present in half	*
Hallucination	concrete and vivid	less concrete and vivid	*
Delusion	fragmentary	systematic	*
Anxiety	mostly present	present in half	*
Psychomotor Excitement	frequent	occasional	none
Type of Onset	acute	subacute	subacute~chronic
Duration of Illness before the First Visit to Psychiatrist	< 1 month	1~6month	6 month>

* no consistent features due to small number of subjects.

ment to some extent, only partial recovery was gained during one year in spite of the treatment. Three subjects died of different causes.

Group III (the refractory group): Poor response to treatment, all female, eccentric premorbid personality and chronic onset.

Throughout one year after the onset, one remained unchanged in hallucination and/or delusion, two subjects fell into dementia.

Table 9. illustrates the summary of above mentioned characteristics in each group.

Discussion

Hallucinatory-delusional states of non-organic origin are some of the most important states in clinical psychiatry. Hallucination and delusion are the principal symptoms of psychopathology. These states can be seen in any decade of life with variety of prevalence and especially in the elderly they showed floridness and richness in psychopathology, resulting in apparent behavioral disorders. So the hallucinatory-delusional state of non-organic origin in the elderly is an important and substantial state in clinical practice despite of the low prevalence.^{1,2}

Response to treatment in hallucinatory-delusional states in the elderly

Research on the prognosis (response to treatment) is one of the most important ways to know the true nature of mental disorder.

However, there is little literature in long-term prognosis research of paranoid-hallucinatory states in the

elderly.³⁻⁶ The main reason of this scarceness of the literature is due to the difficulties in following up these patients in the long term. Because of the subjects's age, organic changes in the brain more or less exist in all subjects, advancing yearly making it extremely difficult to differentiate the organic symptoms of the brain such as dementia from the disorder itself. Therefore, short term outcome is indispensable to know the true nature of the hallucinatory-delusional state of non-organic origin in the elderly.

All subjects in the present study were confirmed from the clinical interview and medical record that they had no obvious dementia nor disturbed consciousness. On the dementia scale such as Hasegawa administered to 35 subjects no moderate-severe intellectual deterioration was found. Thirty three subjects were examined by brain CT-scan, did not exhibit definite dementia. Only five of them had mild brain atrophy but this was within normal range considering the age of the patients. EEG was taken in 27 subjects. No EEG abnormalities suggesting clouding of the consciousness was seen. Six subjects had diffuse α pattern which was thought to be due to aging.

It was also useful from the clinical practice point of view that after one month treatment these 43 subjects could be classified into three groups: complete recovery group, partial recovery group and refractory group.

Complete recovery group: This group of subjects responded well to treatment and whose symptoms disappeared within a month's time. These subjects are classified as Group I.

In Group I, four subjects demonstrated substantial affective symptomatology (two males, two females). They were diagnosed as depression prior to the mani-

festation of hallucination and delusion. Although they were diagnosed as having depression, according to DSM-III-R⁷ they should have been diagnosed as having schizoaffective disorder as the delusion and/or hallucinations were present for more than two weeks without prominent mood symptoms.

As previous literature shows, affective disorders of this age are more apt to develop hallucinations and delusions than the young patients.^{4,8,9} Factors related to aging may contribute to the changing clinical picture.⁹

Although there was symptomotological specificity compared to the younger ones, the treatment was the same. An anti-depressant was used along with the major tranquilizer.

The most common subjects in this group were not subjects diagnosed as having depression. Mood disorder was not conspicuous. From the course, clinical picture, biological factors and socio-economical factors these subjects were different from those of the previously reported hallucinatory-delusional states of the elderly which could be considered mostly in the schizophrenic spectrum.^{8,10–13} There was no female predominance. Most of the subjects had stable healthy personality structure, normal marital status, functioning sufficiently in society before onset. Although sensory deficits were found in as high as 40%⁵ in past literature and playing a certain role in developing hallucination and delusion, only one subject was found in Group I, using hearing aid with no difficulties in leading daily life. Most of the subjects had a history of marriage, six subjects were living alone due to death of their spouse.

As for the precipitating factor in 16 subjects (88.9%), situational changes in their life course was identified before onset. Two subjects could be estranged from the situation of the onset and recovered without admission to hospital. For the remaining eight subjects (44.5%) admission to hospital helped them escape the situation.

From these two facts there was a strong similarity with psychogenic reaction. The significant high rate of anxiety (88.9%), relatively common hypochondriacal complaints and depressive mood observed concurrent with the psychotic symptoms also supports the similarity to psychogenic reaction. In most cases, the symptoms appeared acutely after the precipitating factor and came to psychiatric care in a short period. In "Allgemeine Psychopathologie" (1913) K. Jaspers¹⁴ listed up the mark of psychogenic reaction as follows; (i) if the cause of this reaction was not experienced the whole reaction would not have emerged, (ii) the theme of the state had apprehensible connection with the cause, (iii) if the cause is removed, the state ceases. K. Schneider¹⁵ later asserted that most of the state meets criteria (i), but not necessarily (ii) and (iii) and stressed the importance of premorbid personality. The subjects of the present study met mark (i) and (iii), this firmly suggested the similarity to psycho-

genic reaction. Mark (ii), however, was doubtful and no prominent deviation of the character was found. For these facts, the investigation of the symptomatology was suggestive.

As for the symptomatology, in four subjects visual hallucination was observed. These were vivid and detailed. Auditory hallucination was seen in eleven subjects. Five auditory hallucinations were elementary such as ringing bells. There was no self-comment nor mutual conversation. This was different from the auditory hallucination of Schneider's first rank symptom. Thirteen auditory hallucination and visual hallucination were vivid (72.2%), more distinct in outline and more substantial than seen in the younger population. These hallucinations had strong similarity to that of organic brain syndrome. As Peters¹⁶ pointed out, hallucination of the "hirnorganische Psychose" is "leibhaftig, sinnhaftig".

The content of the delusion was not systematized, being fragmentary, less elaborate and banal in 13 subjects (72.2%). Persistence to the theme of delusion was weak. The target of the delusion was in the vicinity and concrete reference to nearby and daily figures were common. Bizarre, specific delusions as seen in the young that could be diagnosed as schizophrenia from the theme itself was rare. U.H. Peters¹⁶ stated the delusion of "hirnorganische Psychose" as "welthaftig". Such expression meets the characteristics of the delusion of the Group I also.

As mentioned in the results, the subjects lacked critical sense but were able to described in detail about the hallucinations and delusions even after they have disappeared. Although these subjects had no obvious disturbance of consciousness in the ordinary clinical sense, from these above features possibility of transient very mild delirious state might be suggested.

Two characteristics emerge. (i) the course is similar to psychogenic reaction. (ii) the content of the symptomatology is similar to organic brain syndrome, that is very mild delirious state.

Then how could these two characteristics be interpreted consistently? The constitutional factors of the individuals revealed to be normal overall and no special traits were found. And as for the precipitating factors, they varied in each subject and no common features were found. But the author stresses the existence of precipitating factor itself found in most of the subjects. On the other hand, the author also stresses the reduced functional redundancy of the brain due to senility. Although subjects did not manifest any obvious dementia nor any obvious mental deterioration, they can easily develop cerebral hypofunction such as very mild delirious state not observed in young subjects. The existence of precipitating factor itself worked as a stressor to the subjects whose functional redundancy is reduced. In another words, when life stresses occur, the "subclinical"

cerebral hypofunction due to senility lapses transiently into "apparent" cerebral hypofunction leading to acute hallucinatory-delusional state, course similar to psychogenic reaction and symptomatology similar to organic brain syndrome.

In the previous literature there are no exact descriptions of this state pointing out above mentioned characteristics. Among the five subclassification of Janzarik's Altersschizophrenie, "acute delusional psychosis" (akute wahnhafte Psychose)¹⁷ is near, which is characterized by delusional mood, identical to onset of acute schizophrenia but does not take the direction of schizophrenia. It can be likened to bouffée délirante in the French literature. It assumes altered consciousness in the background but no interpretation is made. The high rate of psychomotor excitement (61.1%) (oneiroido-confusional state) and acute onset (66.7%) suggests its similarity to Group I but it does not mention about the similarity to organic brain syndrome in symptomatology. And four subjects although the symptoms were not chronic, resembles Janzarik's Kontaktmangelparanoid¹⁸ which is a schizophrenic syndrome manifesting itself in the over 60, predominance of female, premorbid personality active but sensitive. Here onset is closely related to the situation of "isolation". Once the situation of "isolation" is changed and the environment adjusted the symptoms rapidly disappear. The course is like psychogenic reaction.

The plausible diagnosis in DSM-III-R is brief reactive psychosis classified in "psychotic disorders not elsewhere classified". Craig and Bregman¹⁹ stated 15.6% of the elderly patients diagnosed with schizophrenic or paranoid disorder with the chart diagnosis of DSM-III (omitting the age of onset criterion) had a brief psychotic episode with full remission.

During the one year follow up, four subjects recurred although they recovered once completely from the hallucinatory-delusional state. All of them were put back into the same situation or setting causing former psychotic condition and at the same time discontinued the medication. Both factors above mentioned supposedly caused the recurrence of hallucinatory-delusional state.

There are few descriptions of hallucinatory-delusional states in the elderly which take the form of psychogenic reaction leading to full recovery on treatment.¹⁹⁻²² Even if the similarity to psychogenic reaction is pointed out, similarity of symptomatology to organic brain syndrome is not mentioned.

Partial recovery group: In this group it included two depressive subjects (two males, 0 females) manifesting delusion. Anti-depressant was added to major tranquilizer but did not respond well to treatment after one month. The reason for the poor response to treatment in these subjects is not clear. The diagnosis according to DSM-III-R is "schizoaffective disorder" as found in

Group I.

There are several reports corresponding to subjects in Group II, in which hallucinatory-delusional state was manifesting in the elderly exclusive of organic and depressive (affective disorder) origin and response to treatment is poor. In these subjects the issue arises in the so called "late onset schizophrenia". There is a considerable confusion in this field regarding the terminology. Different investigators used the terminology differently in several studies. The following is the historical review of the milestones in this field in chronological order.

Traditionally, since Kraepelin's description of dementia praecox (1915), the researchers limited the onset of the disorder in the adolescence. Later in 1919 Kraepelin²³ characterized a group of late onset (over 40 years) psychotic patients who differed from classical schizophrenia, and named it "paraphrenia". But Mayer's³ prospective study showed 30 out of 78 paraphrenic subjects turned out to be typical schizophrenia in the long term and the word paraphrenia was denied. Next M. Bleuler⁴ included non organic hallucinatory-delusional state over 40 as schizophrenia and called it "Spätschizophrenie" and stated 4% of them manifest over 60 years of age. Clinical picture was more related to atypical psychoses and different from the adolescent.

In the literature in English Roth first used the term "late paraphrenia" in 1955¹⁰. A descriptive term that did not imply etiology or prognosis. At that time, all mental disorder in the elderly was thought to be due to organic change but he carefully extracted the functional psychosis from the organic psychosis and stressed its importance.

He defined it as "a well organized system of paranoid delusion with or without auditory hallucination existing in the setting of a well preserved personality and affective response". The characteristics of this unitary group are predominance of female, deviation in premorbid character and sensory deficit.

Another milestone in this area is Janzarik's Altersschizophrenie, Kontaktmangelparanoid^{17,18} as mentioned above in Group I. In Altersschizophrenie he collected 50 schizophrenic subjects first manifested hallucination and/or delusion over 60 years and were classified into six groups (Table 9.). (i) acute delusional psychosis; delusional mood, identical to onset of acute schizophrenia but does not lead the course of schizophrenia, it is like bouffée délirante in the literature in French. (ii) acute delusional psychoses with isolated auditory hallucination; delusion persists for several month concurrent with auditory hallucination. Delusional and anxious state persists. (iii) chronic paranoid psychoses; insidious delusion of reference is seen. (iv) persecutory hallucinatory psychoses; delusional state persists for several months and delusion is prominent rather than hallucination. Erotic theme of delusion is common and is psychodynamically understandable. (v) halluci-

natory psychoses; hallucination like somatic hallucination persists. (vi) catatonia; this resembles catatonic schizophrenia. As described above, the symptomatology of Altersschizophrenie was so rich and florid. This richness agrees with the present study. Another characteristic of Altersschizophrenie was that when the course was more chronic, hallucination became more prominent, delusion subsiding to the background and transition was seen between the subtypes. In present study the stress was on the short term outcome so this tendency of transition from one subtype to another was not recognized.

Post⁸ studied 93 subjects who were suffering from paranoid symptoms that appeared for the first time after age 50 and differentiated them into three groups. The first group “paranoid hallucinosis” was characterized by auditory hallucination associated with persecutory delusions. The second group “schizophreniform syndrome” had disordered thought and persecutory beliefs more psychodynamically comprehensible. The third group “schizophrenic syndrome” had Schneiderian first rank symptoms.

Which sort of the above mentioned diagnosis of the three investigators then do the subjects of Group II correspond to. Three subjects were not able to be followed. Two subjects recovered within two months. These two subjects could have probably belonged to Group I. The remaining 17 subjects were discussed and the diagnosis was compared with the diagnosis at the initial contact and at the time of one year follow up. Three subjects died within one year and their diagnosis at the time of death is considered.

As showed in Table 10, twelve of 17 subjects were, to some extent, similar to Roth's late paraphrenia, and four of them were typical late paraphrenia. Remaining five subjects were not plausible because of their normal healthy personality and good previous adaptation. In this study subjects had low hereditary load, a high rate of history of marriage (95.4%) and influence of sensory deficit was lower than expected. In symptomatological terms it agrees with Roth descriptions but many subjects have several different backgrounds. This diagnosis seemed compatible symptomatologically but too broad in another aspects²⁴ because not all the subjects presented the constitutional characteristics mentioned by Roth. The diagnosis did not change in any subjects after one year.

All 17 subjects were plausible for three subtypes of Altersschizophrenia, nine subjects met subtype (ii). As for subtype (iv), five subjects fell in to this type. Three subjects met subtype (v). Janzarik pointed out that when the course was chronic, hallucination became prominent and transition was seen between the subtype. In this study, the stress was on the short term outcome so this tendency of transition from one subtype to another was not seen. Janzarik's subtypes were classified mainly from

the symptomatological view. These subtypes were useful to depict the rich and varied symptoms descriptively but cannot predict the prognosis over a period of one year.

As for classification by Post, although all subjects met the subclassification, the subjects of the investigation was somewhat different. The onset was over 50 years of age and about one third of the subjects had organic cerebral disorders in a three year follow up. The study cannot be compared with the present study.

All subjects, excluding the three subjects not able to be followed met DSM-III-R diagnosis, simply because it is an operational concept. As the diagnosis took the consideration of length of the symptomatology, in seven subjects diagnosis changed, first diagnosis being provisional. This was only possible by following the subjects for at least six month.

The controversy of classifying this state as schizophrenia is still difficult because concept of schizophrenia depends closely on the individual researcher's own definition of schizophrenia, so discussion on the evidence is difficult. Some however, are sure to belong to the schizophrenic spectrum. For example, late paraphrenia is considered to reside in the schizophrenic spectrum because it agrees with many different criteria for schizophrenia.²⁵ And other reports also assume late onset non organic hallucinatory-delusional state belongs therefore to the schizophrenic spectrum.^{8,10–13}

Four subject's condition recurred because of the discontinuance of treatment. Although they responded to treatment the course of recovery was slower than in the first episode.

It is true that aging modifies physiological and psychological factors and no sharp differentiation can be made between endogenous schizophrenia, depression and reactive psychosis.^{5,11,17} To disregard the nosological classification is sometimes inevitable. If symptomatologically hallucinatory-delusional is observed, one should make an approach in several ways. It is in this richness and diversity of the psychopathology that the characteristic of such state exists.

Refractory group: None of the three subjects responded to treatment. The symptomatology is also rich. Delusion was relatively systematized. All three subjects could be diagnosed as late paraphrenia at initial contact. According to Janzarik's subclassification two subjects experienced acute delusional psychosis and one subject experienced persecutory psychosis. As for Post's subclassification, one subject met schizophreniform syndrome and two subjects met schizophrenic syndrome. After one year two subjects demented.

From the scores of Hasegawa Dementia Scale, clinical interview, EEG study and CT-scan, none of these three subjects had findings of dementia on initial contact. It was not possible to prove that organic disorders were

Table 10 Diagnosis of Group II.

Late Paraphrenia	(Roth. 1955)	Initial Contact 12	After 1 Year 12
Altersschizophrenia	(Janzarik. 1957)		
acute delusional psychosis		0	0
acute delusional psychosis with isolated auditory hallucination		9	9
chronic paranoid psychosis		0	0
persecutory hallucinatory psychosis		5	5
hallucinatory psychosis		3	3
catatonia		0	0
Persistent Persecutory States (Post 1966)			
paranoid hallucinosis		0	0
schizophreniform syndrome		4	4
schizophrenic syndrome		13	13
Kontaktmangelparanoid	(Janzarik 1973)	0	0
Schizophrenia	(DSM-III-R 1987)		
catatonia type		0	0
disorganized type		0	0
paranoid type		2	9
undifferentiated type		0	0
residual type		0	0
Psychotic Disorders Not Elsewhere Classified			
brief reactive psychosis		0	0
schizophreniform disorder		9	2
schizoaffective disorder		2	2
psychotic disorders not otherwise specified		0	0
Major Depressive Episode with			
psychotic features mood congruent		0	0
psychotic features mood incongruent		0	0
Delusional Disorder			
erotomanic type		1	1
grandiose type		0	0
jealous type		1	1
persecutory type		2	2
somatic type		1	1
unspecified type		1	1

causal for hallucinatory-delusional state in these subjects at the initial contact. One subject although refractory to treatment did not fall into dementia. It was not known if the subject fell into dementia in future or if the subject more close to Group II, as some late paraphrenias fall into dementia in the long term.⁵ The difference in response to treatment was not known.

Asai et al. shows that 27.6% of patients with dementia over 65 of age have delusion and 12.1% have hallucination.²⁶ But the accurate percentage of the delusion and hallucination preceding dementia state is not known. In dementing illness with prominent schizophrenic features it is said the personality is often abnormal.⁸ In Group III, two subjects were schizothym and 1 was obsessional. The relationship between senile dementia and schizophrenia-like state is less clear than supposed. The neglect of organicity is important but a very difficult issue to

resolve.

As it was seen in Group I and Group II most of the hallucinatory-delusional states of the elderly responded to treatment. If the subject does not respond to treatment at all, one should bear in mind dementia in the long term, especially when premorbid personality is eccentric and delusion relatively systematized. In those subjects hallucination and delusion are a prodromal symptom of dementia.

Comparison between the three Groups

As mentioned in the statistical investigation, in Group I no premorbid personality deviation was found compared to Group II. Other statistical significant differences compared to Group I were good previous adaptation, a high rate of precipitating factor, the acute onset and

search for psychiatric consultation within one month. Characteristics of symptomatology were vividness and concreteness of hallucination, fragmentariness of delusion, anxiety and psychomotor excitement concurrent with the hallucination and/or delusion. In clinical practice, if one encounters this acute onset of hallucinatory-delusional state subsequent to the precipitating factor and similar symptomatology to organic psychosis, one may predict the outcome of after one year if adequate treatment is administered.

On the other hand as in Group II, if the subject has not adapted so well in social, familial situations and has a deviated premorbid character, subacute onset, and symptoms do not disappear within one month, it is assumed the outcome is not so good at least for one year even if the treatment is continued.

Significant symptomatological difference between Group II and Group III was not found.

From the results of the one year follow up, classifying the subjects at a month time was also beneficial for further longer outcome if the treatment is administered properly.

Treatment and Prophylaxis

Forty out of 43 subjects responded more or less to treatment but eight subjects relapsed due to discontinuance of the treatment. As psychiatric symptoms in the elderly have a tendency to relapse, continuation of the medication is recommended.

As is seen in the present study, any elderly persons who are usually thought to be constitutionally at low risk, and not manifesting hallucinatory-delusional state until over 60 years of age do have possibility of developing such states if in particular situations, either psychological or somatic. What kind of life events are vulnerable to an individual is difficult to predict. Therefore, daily mental health care is important.²⁷

Much concern should be paid to psychological and somatic conditions leading to the precipitating factors. Physical and psychological emaciation, low energy state inevitably precedes the state so the importance of environmental adjustment and somatic care should be stressed.

Conclusion

1. 43 subjects (male 15, female 28) of hallucinatory and/or delusional state first manifested over 60 years of age were investigated.
2. They were classified into three groups according to the course of the treatment after one month.

(i) Group I: complete recovery group: The group was different from most of the previously reported hallucinatory-delusional states of the elderly. It resembled psy-

chogenic reaction in its course and at the same time it resembled organic brain syndrome in its symptoms: i.e. vividness and concreteness of hallucination and fragmentariness of delusion. This could be interpreted as occurring under the influence of precipitating factors, "subclinical" cerebral hypofunction due to senility lapses transiently into "apparent" cerebral hypofunction, leading to acute hallucinatory delusional state, which is similar to psychogenic reaction in its course and similar to brain organic syndrome in its symptomatology.

(ii) Group II: partial recovery group: This group was similar to that previously reported as Roth's "late paraphrenia", Janzarik's Altersschizophrenie.

(iii) Group III: refractory group: Dementia manifested in two out of three subjects. Their symptoms could be interpreted as prodromal symptoms of dementia.

3. Aging reduces the reserve of cerebral function to cope with the environmental changes. Among aged people, various events and factors in daily life often could become precipitating factors of the hallucinatory-delusional states. The importance of regular mental health care must be stressed.

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