絵カードを使った記憶のテスト

A Memory Test Using Picture Cards

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要　約

集中治療室（ICU）に入室した患者に一過性の記憶障害が認められるかどうかを実験的手続きにより検証した。

この研究は，①ICU 入院中，患者は意識障害もなく十分適応できていたと思われるにもかかわらず，ICU で体験したことを記憶していないという患者の反応に対する疑問，②幾つかの先行研究はあるが，これらは評価尺度が研究者間で共通していない，③鎮静剤など薬剤の影響が示唆されているが，薬剤の効果を統制した調査は見当たらない，④意識障害，疾患の重症度を限定した調査はみあたらない，といった疑問と問題に気づいたことから出発している。

研究対象は，人口約100万の地方都市にある総合病院（500床）である，循環・呼吸器系集中治療室に緊急搬入された心肺系疾患患者19名。

ICU 入院の形態，疾患群の限定，鎮静剤などの薬剤の影響，意識障害の有無を条件統制した。検査の結果は，ICU 群の正反応枚数は平均5.3枚で，コントロール群は平均8.7枚であった。この群間差は統計的に有意であった。

意識障害のないことを確認された患者が自分で読み説明した絵カードの想起が，7日目には困難であったということがこの研究から浮かび出た要点である。記憶障害の要因として ICU 環境とそこでの生活要件が考えられた。

Key word：intensive care unit, memory, picture cards.

Introduction

The present study was undertaken to examine whether or not patients admitted to the ICU would undergo transient memory disorder.

This study was conducted against the following background: (1) we had found that patients would have no memory of what they had undergone during their ICU experience, although the patients themselves thought that they had adapted well to being on the ICU and had not developed any memory disorders; (2) although several studies of memory disorders among ICU patients had been published, different assessment scales were used in these studies; (3) although the adverse effects of drugs such as sedatives had been suggested, no studies of drug effects on memory had been published which adequately controlled possible confounding factors; and (4) no surveys had been published focusing on memory disorder in relation to severity of illness.

Subjects and Methods

[Subjects]

The subjects of this study were 19 patients with cardiopulmonary disease who were admitted to

the cardiovascular intensive care unit on an urgent basis. Care was taken to avoid possible influenccs of confounding factors such as : the cause of the ICU admission, the type of disease, the effect of druge (e.g., sedatives) and the presence or absence of disturbances of consciousness. Ten patients with cardiopulmonary disease who were managed on ordinary wards served as controls. The following tools were used for the survey: (1) 20 picture cards (10 for target stimulation and 10 for distracter; Fig.1), and (2) a modified version of Hasegawa's dementia scale (to assess intellectual functioning). When using Hasegawa's dementia scale, Task No.8 was omitted because this task is impossible for most people to perform in the supine position and the patients were not allowed to change their position during the early period after admission to the ICU. The full score of this test was therefore 25 points.

[Methods]

Test schedule: The fiest test was performed soon after the initial treatment of the patient in the ICU was completed and chest pain had disappeared. It was performed while the patient was lying a supine position. The second test was performed 7 days after the first in test. The patient remained sitting during the second test. The control group received the first test on the day following admission and the second test 7days after the first test.

Test procedure: During the first test, an assessment using Hasegawa's dementia scale was performed. Subsequently, the 10 picture cards were presented one after another as target stimulation, while the patient was asked, "What does the picture on this card represent?" The patient was asked to give an oral answer to the question. If the patient could not identify the picture on the card, the examiner said, "This is a picture of XXXX," and then asked the patient to repeat this response aloud. Each card was presented for about 30 seconds. During the second test, 20 picture cards, including 10 target stimulation cards and 10 distracter cards, were presented one at a time to the patient was instructed to select the cards he/she had seen 7 days before. The number of correct and incorrect answer and the number of items the patient could not name were entered in the assessment table.

Results (Table 1)

The subjects of this study were 19 patients who were admitted to our ICU on an urgent basis between October 1, 1994 and March 10, 1995. There were 17 patients with myocardial infarction, 1 patient with heart failure and 1 with cardiopulmonary sarcoidosis. Of these 19 patients, 13 were male and 6 female. Their ages ranged from 47 to 80 years (mean: 62.5 years). The control group was composed of 5 patients with old myocardial infarction and one patient each with heart failure, pneumonia, angina pectoris, respiratory failure and hydrothorax. Of the 10 control patients, 8 were male and 2 female, with ages ranging from 42 to 74 years (mean: 59.7 years). There were no significant inter-group differences in terms of age or sex. The patients stayed in the ICU for 2-9 days (mean: 4.4 days). The mean score on Hasegawa's dementia acale was 23 points (19-25 points) for the ICU group, which did not differ significantly from the score for the control group (mean: 23 points; range: 17-25 points).

For the ICU group, the number of correct identifications on the picture card presentation test ranged from 0 to 8 (mean: 5.3). Only 5 patients (25%) from the ICU group had 8 or more correct answeres. For the control group, the number of correct answer ranged from 8 to 10 (mean: 8.7). Thus, all patients in the control group had 8 or more correct answers. The difference between the ICU group and the control group in the number of correct identifications was statistically significant [$F(1.27)=21.5, p=.0001$]. The number correct answers did not correlate with age or length of ICU stay.

The outcome of the picture card presentation test clearly indicates that the patients managed on the ICU experienced some memory disorder.

Discussion

A noteworthy finding of this study is that some patients could not remember the picture cards which they had seen and named 7 days before, and that these patients had been confirmed to be free of disturbances of consciousness when assessed according to Hasegawa's dementia scale (mean score for all patients = 23, range=19-25, full score =25). The results clearly indicate that when ICU patients were compared with control patients, eliminating possible effects of biases in brain function, consciousness level and effects of drug therapy, ICU patients' memories were less acute than those of the control patients. The atmosphere of the ICU and other conditions to which patients are exposed during stay in the ICU seem to be responsible for this memory disorder.

The picture card presentation test revealed that patients who admitted to the ICU on an urgent basis had memory disorders. Several reports of the memory functions of patients managed on ICUs have been published previously. These reports showed that the patients had little or no memory of what they had undergone on the ICU, and that 50% of the patients did not remenber being admitted to the ICU (Jones J et al., Hallenberg B et al, Turner JS, Compton P, Jones C et al.). Memory disorders observed on the part of ICU patients have been reported to be associated with the severity of their underlying illness (Turner JS et al), stress and effects of drugs (anticholinergics, anesthetics, and sedatives) (Hallenberg B et al.), the ICU atmosphere (Bentley S et al.) and disturbed REM sleep (Topf M et al.).

All subjects but one (Mr. F) had received the antiarrhythmic agent-Xylocaine (lidocaineHCL) -intravenously. Anticholinergics or anesthetics had not been used on any patient. All patients had clear consciousness at the time of the rests. One patient (Mrs. G) was unable to speak aloud while he was receiving mechanical breathing assistance, but the other patients were able to talk normally with their familes and medical staff members. They were sometimes very talkative. We have the impression that these patients had adapted themselves well to the ICU. Their blood pressures did not fall enough to induce cerebral ischemia. The data, however, indicate that the memories of these patients during their stays in the ICU were partially or completely lost. The present study revealed no particular relationship between the loss of memory and the type of treatment, the amount of drug used, the type of medical devices uesd or the length of ICU stay.

References

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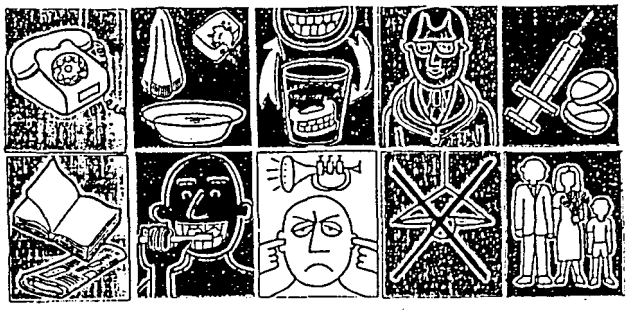

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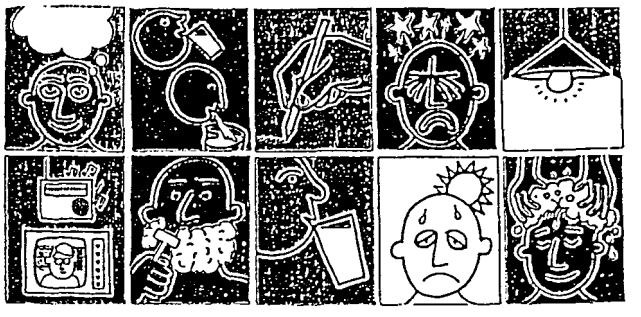

(distracter)

図　調査に用いたカード

集中治療室入室体験者の記憶調査

		年齢	性	疾患名	ICU 潜在期間	調査日		HDS-R	絵の正答数
集中治療室群	A	70	♀	急性心筋梗塞	5	10/1	10/7	19/25	5/10
	B	64	♂	急性心筋梗塞	3	9/30	10/6	21/25	6/10
	C	78	♀	急性心筋梗塞	2	10/4	10/11	24/25	6/10
	D	70	♂	急性心筋梗塞	5	11/1	11/7	25/25	4/10
	E	64	♂	急性心筋梗塞	6	11/5	11/12	23/25	8/10
	F	47	♂	急性心筋梗塞	5	11/6	11/13	24/25	5/10
	G	62	♀	心肺サルコイドーシス	4	11/16	11/22	24/25	6/10
	H	59	♀	急性心筋梗塞	9	11/20	11/27	22/25	8/10
	I	70	♂	急性心筋梗塞	2	1/9	1/15	23/25	8/10
	J	51	♂	急性心筋梗塞	4	1/9	1/15	25/25	5/10
	K	54	♀	心不全	5	1/27	2/3	23/25	7/10
	L	71	♂	急性心筋梗塞	3	2/7	2/13	25/25	5/10
	M	80	♂	急性心筋梗塞	2	2/8	2/14	25/25	8/10
	N	56	♀	急性心筋梗塞	5	2/10	2/17	23/25	5/10
	O	49	♂	急性心筋梗塞	6	2/15	2/22	21/25	0/10
	P	49	♂	急性心筋梗塞	2	2/15	2/22	24/25	5/10
	Q	58	♂	急性心筋梗塞	4	2/14	2/21	23/25	3/10
	R	71	♂	急性心筋梗塞	3	2/21	2/28	23/25	6/10
	S	64	♂	急性心筋梗塞	8	3/1	3/7	19/25	1/10
コントロール群	a	74	♂	胸水		10/25	11/1	25/25	8/10
	b	72	♀	狭心症		11/6	11/12	25/25	9/10
	c	61	♂	呼吸不全		12/5	12/12	17/25	10/10
	d	55	♀	M弁置換後　肺炎		12/5	12/12	24/25	8/10
	e	51	♂	陳旧性心筋梗塞		12/5	12/12	25/25	10/10
	f	65	♂	A－Cバイパス術後心不全		12/13	12/19	23/25	9/10
	g	20	♂	肺炎		12/13	12/19	24/15	10/10
	h	51	♂	陳旧性心筋梗塞		2/6	2/12	25/25	8/10
	i	57	♂	陳旧性心筋梗塞		2/6	2/12	22/25	9/10
	j	69	♂	陳旧性心筋梗塞		2/6	2/12	25/25	8/10
	k	42	♂	陳旧性心筋梗塞		2/21	2/28	23/25	8/10