度23名であった．予め電子メイルによる案内及び授業中に学内演習の目的と計画を説明した．また，当日参加した者に「研究対象者となられる学生の皆さんへ」に手渡し同意の得られた者にのみ演習を実施した．演習内容を以下に示したが，対象者には演習終了後そこで学べた事項についてアンケート調査を実施し，ＫＪ法により分析した．なお，演習は2002年度及び2003年度とも各々３回実施した．

1）問診技術の向上を目指した演習：問診技術を学習させるために，治療者側と患者側の両方の立場でロールプレイを行わせた．

2）紙上模擬患者を使用しての動作分析学習および予測技術向上を目指した演習：予め紙上模擬患者・リハビリテーション処方例について数件用意し，連続写真からの動作分析及び疾患，障害について予後予測をたてさせた後に，その内容についてグループで討議させた．

Ⅲ．結果と考察

１．問診技術に関する演習結果

1）患者役から学んだこと

学生の感想を自由記述させＫＪ法により分類した結果，「問診についての不快感と戸惑い」と「問診票から情報収集することの困難さ」の２つに大別された．

2）理学療法士役から学んだこと

学生の感想を自由記述させＫＪ法により分類した結果，「問診の難しさについての学び」と「不安事・心配事に関して聴取することの難しさ」の２つに大別された．

２．動作分析技術に関する演習結果について

本演習終了後のアンケート結果では，対象者のうち約８割が動作分析の基礎知識は復習できたと回答したが，技術の確認が出来た者は約半数，演習全体を通じての理解は約８割であった．また，9割近い対象者がこの演習の意義を認めていた．なお自由記述には，演習からの学びや自己分析，不安などが書かれていた．これらの結果から問診の演習同様，この演習も動作分析方法の再確認と自己分析を促す機会にはなったと考えられる．

３．紙上患者による理学療法過程の演習結果について

本演習終了後のアンケート結果は，概ね良好であった．約８割が知識の復習ができたと回答し，ほぼ全員がこの演習の意義を認めていた．自由記述には，理学療法過程に関して復習ができたがむずかしい点もあること，対象者のイメージが浮かびにくいことが挙げられた．これらから問診や動作分析の演習結果と同様，理学療法過程の再確認と自己分析を促すよい機会になったと考えられる．

４．今後の課題

現３年生も旧カリキュラムが適応されるため，本研究の対象者と同様に前回の学外実習から初期総合実習に出る前に１年間の空白が生じる．そのため，2002年度から試みている本演習の継続は必要不可欠である．今年度は本学科教員の協力を得ながら，新たに作成した映像教材を用いた学内演習を行うことで初期総合実習の導入を円滑に図りたいと考えている．

Ⅳ．文献

岩月宏泰，藤田智香子：理学療法学生に動作分析技術を習熟させるための学内演習プログラムについて．日本公衛誌（特別附録），50：260，2003.

ポスターＰ－10

A contribution of autopsies to understanding dementia in presenile-senile period

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Key words：Alzheimer disease, Down syndrome in middle age, Pick disease, ALS with frontotemporal dementia, Parkinson disease, Myotonic dystrophy

Ⅰ．Introduction

The population of old people (over age 65) of our country is about 22.5 million at present. It is predicted that it will be 34.5 million in 2020, and the about 7% (2.40 million) of which will be patients with dementia. Each 40% of them will be patients with Alzheimer disease (AD) and those with cerebrovascular dementia. The remainder 20% will consist of patients with other type dementia.

AD is characterized histologically by the presence of neurofibrillary tangles (NFTs) and senile plaques, and marked brain atrophy takes place by falling-off of nerve cells. Sooner or later, patients develop advanced dementia, decay of personality, and apallic syndrome including akinetic-mute bed-ridden state. Although many families with gene mutations have been reported, most patients with AD are sporadic in occurrence. In

sporadic patients, the cause of the disease has not yet become evident, although some etiologic factors are discussed.

In contrast, the primary cause of cerebrovascular dementia is almost always cerebral infarction based on arteriosclerosis, angiospasm, arteritis, or endocarditis. Although cerebrovascular dementia can be prevented to greater extent by the improvement of lifestyles and habits, there is no preventative measures against neurodegenerative diseases such as AD. Moreover, there is a gradual increase in number of patients with AD because of aging of the society and westernization of the life-style in Japan. Therefore, high expectations of our society are being placed for the advance of the research of the neurodegenerative diseases.

Ⅱ. Purpose and Subjects

The purpose of this study is to perform the following (1)-(3), by making autopsies (postmortem examinations) of patients with AD or related disorders (Down syndrome in middle age and Pick disease), patients with ALS with frontotemporal dementia, and
those with Parkinson disease.

(1) To clarify the properties, degree, and extent of the lesions by investigating thoroughly the body and organs affected by the disease.

(2) To clarify the interrelation between the above data and the clinical manifestation, course, and turning point, in addition to direct and indirect causes of death.

(3) To make any new discovery that could be important for understanding mechanisms or useful for prevention or treatment of the disease, by investigating in detail the brain and other organs and tissues that can only be obtained by the autopsy.

Ⅲ. Methods

(1) Macroscopic observations of diseased organs and tissues.

(2) Fixation of tissues or organs in buffered 10% formalin. After fixation, brains were carefully examined by serial sectioning.

(3) Tissue-blocks were rinsed in water, dehydrated in ethanol series and transferred into xylene, and embedded in paraffin. Four to 6 μ m sections were obtained by using a microtome.

(4) Hematoxylin & Eosin (H-E) stain, Kluever-Barrera (K.B.) stain, and Bodian stain were carried out in addition to various kinds of immunostaining.

(5) Electron microscopy: tissue blocks were fixed in 1% osmium tetroxide solution after fixing in 2.5% glutaraldehyde solution. They were embedded in epoxy resin. Semi-thin sections were staind in 1% toluidin blue solution. Ultra-thin sections were stained in 3% uranium acetate and then in lead citrate solution. They were observed in a JEM-2000 EX electron microscope (Nihon-denshi, Tokyo, Japan).

Ⅳ. Results

(1) On AD : ① A patient with the onset at age 46 and the total clinical course of 12 years was autopsied. The direct cause of death (aspiration pneumonia), the properties, degree, and distribution (especially of NFTs) of the brain lesions were revealed.

② The range of occurrence of the lesion (i.e. NFTs) proper to AD was clarified by examining an autopsied patient who died of pyothorax and aspiration pneumonia, with the onset at age 38 and 24 years' clinical course. The clarification of frequently-occurring sites and non-occurring sites of NFTs in the human nervous system should contribute in the future to disclosing the mechanisms underlying NFT formation.

③ An autopsy of a 45-year-old patient with Down syndrome who died of bronchopneumonia was made and revealed the properties, degree, and distribution (especially of NFTs) of the brain lesion.

(2) On Pick disease : A patient with Pick disease with the onset at age 51 and 15 years' clinical course who died of aspiration pneumonia was autopsied and the properties, degree, and distribution (especially, the occurrence range of Pick bodies) of the lesion were clarified.

(3) On ALS with frontotemporal dementia : A patient with ALS with frontotemporal dementia (so-called Yuasa-Mitsuyama type) with the onset at age 51 and 2.5 years' clinical course who died of aspiration pneumonia was autopsied. The properties, degree, and distribution of the lesion of the brain and spinal cord were clarified.

In addition, the demonstration of ubiquitin-positive

inclusions was made not only in neurons but also in glia. This was the first to demonstrate those inclusions in glia.

(4) On Parkinson disease : A patient with juvenile Parkinson disease with the onset at age 24 and 14 years' clinical course, who died of aspiration pneumonia was autopsied. The autopsy revealed the widespread occurrence of Mallory bodies in the liver, fatty psuedohypertrophy of the pancreas, and the diffuse occurrence of Lewy bodies in the brain. Careful examinations of the brain and spinal cord clarified the properties, degree, and distribution (especially of Lewy bodies) of the lesion. A comparison between the brain lesion of patients with ordinary Parkinson disease and that of the patient with juvenile Parkinson disease was made to clarify differences between the two. In addition, careful observations of preparations immunostained for α-synuclein from 5 autopsied patients with Parkinson disease revealed tau-negative and α-synuclein-positive inclusions not only in neurons but also in glia. The distribution pattern of the occurrence of the glial inclusions in the brain stem was also disclosed.

(5) On myotonic dystrophy (MD): A patient with MD with the onset at age 30 and 31 years' clinical course died of recurrent pneumonia followed by cardiorespiratory failure. The autopsy revealed bilateral aspiration pneumonia, pleural effusion, and marked atrophy of the testicles, in addition to generalized muscular atrophy which affected the distal muscles more severely than the proximal ones. The testicles showed complete loss of seminiferous tubules and their total replacement by dense collagenous tissue. The skeletal muscles showed myopathic changes which included a remarkable variation in fiber diameter and rounding of the cross-sectioned faces, a great increase in internal nuclei sometimes forming pyknotic nuclear clumps or chains, in addition to moderate endomysial fibrosis. Close examinations of the atrophied brain (1,000g) and olfactory bulbs elucidated the properties, degree, and distribution (especially of NFTs) of the lesion. This was the first to reveal the distribution pattern of NFTs in the brain in MD and of NFT-bearing cell types in the olfactory bulb.

V . Discussion and Conclusion

Lesions of various organs including the brain and spinal cord in each disease and the properties, degree, and distribution (localization) of the lesions can only be disclosed by the autopsy followed by pathoanatomical studies, which explains the clinical manifestation, course and turning point of the patient. The autopsy also reveals direct and indirect causes of death. For accomplishing this purpose, there is no way that surpasses the autopsy. Thus the autopsy contributes to medicine and society. There is no way other than pathoanatomical studies that observe the lesions from the view-point of morphology, which can only deal with structural changes in situ. It is because the structures and forms of tissues and cells are closely linked to their functions that the autopsy followed by pathoanatomical studies contributes to clinical medicine and its progress.

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