

海外短期研修概要

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【出張期間】 2006年8月15日～19日

【学会名】 13th Biennial Congress of the International Society for Free Radical Research (ダボス市、スイス)

【発表者名】 Shin Sato, Megumi Nozawa, Yuka Hatori, Jun Kato and Masaru Sagai

【発表論文名】 Polyphenol-containing azuki bean extract suppresses blood pressure, and renal and vascular nitric oxide synthase expression in spontaneously hypertensive rats (SHR)

【趣 旨】 *Purpose:* The aim of this study is to investigate the effects of polyphenol-containing azuki bean (*Vigna angularis*) extracts (ABE) on the elevation of blood pressure and the expression of endothelial nitric oxide synthase (eNOS), which is involved in production of nitric oxide and induces vascular relaxation in the kidney and the thoracic aorta, in SHR. *Materials and Methods:* Japanese azuki beans harvested in Hokkaido, Japan were ground and extracted in 80% ethanol. After centrifugation, the supernatant was lyophilized. The polyphenol content in the lyophilized ABE was 84 mg/g of ABE. The ABE was mixed with a standard commercial laboratory diet. Different male SHR groups were fed 0% (commercial diet alone), 0.05%, 0.2% and 0.8% ABE-containing diets for 8 weeks. Control normotensive Wistar-Kyoto rats (WKY) were given 0% and 0.8% ABE-containing diets. Tail systolic blood pressure (SBP), expression of eNOS protein and its mRNA and immunohistochemical localization of eNOS protein in the kidney and aorta were examined. *Results:* The SBP in SHR groups was markedly increased compared with that in WKY. After 6 to 8 weeks of treatment, the SBP of ABE-treated SHR was significantly lower (approximately 28 mmHg) than that of the untreated SHR, indicating that ABE ameliorated hypertension in SHR. Immunoreactive band corresponding to eNOS protein were seen at 140 kDa in proteins extracted from the kidney. The eNOS protein in the kidneys was markedly increased in the untreated SHR compared with that in the WKY. In contrast, the eNOS protein levels in the ABE-treated SHR were significantly lower than that in the untreated SHR. In RT-PCR analyses, there was no significant difference in the levels of mRNA in the kidney between the ABE-treated and untreated SHR, though a tendency toward lower levels in

the ABE-treated SHR was observed. In the thoracic aorta, the eNOS mRNA levels of the ABE-treated SHR were significantly lower than in the ABE-untreated SHR. In immunohistochemical analysis, when compared with WKY, there was greater immunoreactivity against the eNOS protein antibody in the endothelial layer of the thoracic aorta and tubular epithelial cells in the kidney in SHR. On the other hands, the eNOS protein expression in these tissues tended to be lower in the ABE-treated SHR than in the untreated SHR. *Conclusion:* These results suggest that ABE suppresses the elevation of blood pressure, and that ABE appears to modulate the levels of eNOS protein and mRNA expression in the kidney and aorta in SHR.

【出張期間】 2006年 8月20日～ 8月28日

【学会名】 The Fifteenth International Congress of Biomagnetism, BIOMAG 2006
(第15回生体磁気国際会議) , Vancouver, Canada

【発表者名】 Isamu Ozaki, Chun Yu Jin, Yasumi Suzuki, Masayuki Baba, Isao Hashimoto .

【発表論文名】 Hemispheric asymmetry in N100m current sources in auditory evoked fields: Comparison of ipsilateral versus contralateral responses.

【趣 旨】 Objective: To investigate whether a hemispheric asymmetry exists in relation to the onset or peak latency of the N100m response, N100m dipole strength, and the spatio-temporal features of N100m dipoles.

Materials and Methods: Using a whole-head Neuromag system, we recorded auditory evoked magnetic fields to 400 Hz tone bursts presented at right or left ear from 35 normal subjects. Onset or peak latencies and dipole strengths of the N100m following left or right ear stimulation were determined in each hemisphere. A laterality index for either ear stimulation was calculated by the formula of (right hemisphere (RH) dipole strength - left hemisphere (LH) dipole strength) / (RH dipole strength + LH dipole strength). Also, the dipole locations for the N100m sources in both sides were successively calculated, using a single dipole method for each hemisphere.

Results: Although the mean onset and peak latencies of the N100m response were prolonged in the hemisphere ipsilateral to the stimulated ear, they differed between the RH and LH; those of the ipsilateral N100m response in RH were shorter than those in LH. The mean laterality index for left ear stimulation was 0.40 ± 0.06 ($n=35$, mean \pm SEM), and that for right ear stimulation, -0.02 ± 0.06 . The current

sources in contralateral and ipsilateral N100m responses moved toward anterolateral direction along the long axis of the Heschl gyrus before the peak latency; in general, the ipsilateral response was located slightly posterior to that for the contralateral one. We speculate that the normalized movement of the N100m current source is along the isofrequency band. In LH, the isofrequency band for the ipsilateral N100m response was shorter.

Conclusions: We have found that, for right ear stimulation, the N100m response in RH is as large as that in LH and that the latencies of the N100m response in RH are shorter than in LH. The longer isofrequency band for ipsilateral response in RH indicates that the right hemisphere has a wider distribution of the neurons with binaural interaction properties. These results suggest the right-dominant hemispheric asymmetry in pure tone processing.

【出張期間】 2006年8月29日～9月3日

【学会名】 The 5th International Biophilia Rehabilitation Conference 2006 Perth, Australia

【発表者名】 Hiroyasu Iwatsuki, Takahiro Kubo*, Junko Iwatsuki and Ichiro Watanabe

【発表論文名】 An Assessment of in Home Environmental Fall Hazards Using the Eye Mark Recorder

【趣 旨】 Purpose: Today, most stroke patients may be discharged to home very soon after a stroke without intensive rehabilitation, the day to day care being performed by families, with support, advice and expertise supplied by domiciliary rehabilitation services. In such cases it is the role of therapists visiting the patient's home to give relatives information (eg. prevention of disuse, fall etc.) and training about rehabilitation procedures. Therefore, therapists need to develop skills in teaching treatment procedures to people with no theoretical background. Now, physiotherapy students facing clinical practicum need the knowledge of intrinsic factors leading to falls by elderly persons and the assessment skills for environmental hazards in some Japanese houses. The purpose of this study was to analyze the relationship between eye movements while watching a motion picture and physical therapy student's recognition of environmental fall hazards in the home.

Method: The subjects were six physical therapy students. We used the

EMR-8, a light weight eye mark recorder manufactured by NAC Image Technology Inc. We asked the subjects to watch a motion picture, the content was a scene in a house, the time required time was 26 sec) on a screen twice, after which they were ordered them to mark the environmental fall hazards on a floor plan.

Results: The line of sight of the subjects stayed at the low edge of the wall, and was directed diagonally more frequently to the floor and obstacles. Most of the subjects indicated some of the environmental hazards (such as slippery floor, unsecured floor rugs, obstacles beside paths, etc), however, a few did not indicate other environmental hazards such as inadequate lighting along paths and steps, coloring between wall and floor. The fall prevention program in Japan offers the elderly home safety assessments and the installation of fall prevention devices.

We also install such risk reduction devices as tub grab bars, toilet assist bars, wall grab bars, rug slips, night lights, etc. While home modification has been included in many multi-strategic programs, the evidence of this as an effective strategy is not strong. However, health care professionals need to be aware of health care in the broader context of life, and of their obligations and responsibility to help create and be informed by a broader model of health care. It is hoped that the relatively inexpensive intervention of making the home environment safer will prevent elderly patients who have had a previous fall from having another potentially more dangerous fall.

Conclusion: Most of the subjects were insufficiently recognized visual information in relation to environmental fall hazards. Therefore, environmental strategies to reduce fall-risk in the elderly have to be taught to the students with in the academic setting.

【出張期間】 2006年9月4日～30日

【研修名】 1.Lymphedema Therapy Certification Course
2.MLD/CDT Advanced & Review Course
Foeldi Clinic at Hinterzarten, Germany.

【発表者名】 Emiko Kimura

【趣旨】 Purpose: These were to get certificate MLD/CDT Therapist and to complete Advanced & Review Course for Lymphoedema patients
Course curriculum: 1. Lymphedema Therapy Certification Course was covered the anatomy, physiology, and pathophysiology, the lymphatic system, basic techniques and sequences of MLD, indications and

contraindications of MLD and CDT, treatment sequences for primary and secondary lymphoedema, lymphoedema bandaging, techniques for upper and lower extremities, remedial lymphoedema exercises, hygienic skin and nail care for lymphoedema, measuring and fitting techniques for lymphoedema support garments, patient evaluation and weekly measuring (circumference and volume), home maintenance and self-treatment for lymphoedema.

2. Advanced & Review Course was trained and certified in the techniques of MLD/CDT. This also reviewed the anatomy, physiology, and pathophysiology of the lymphatic system, basic techniques and sequences of MLD.

In addition, patients case studies, demonstrated by the senior chief therapist, presented by staff physicians of the Foeldi Clinic, participated at doctor's rounds and to discuss difficult to treat lymphoedema cases with an expert panel of physicians and therapists.

Results: I passed the written examination (mid and finally), the practical examination, and presentation of case study. Finally, I got a certificate which were MLD/CDT Therapist (#:KT09060369) and certified Advanced & Review Courses (#:KTCE09060372).

【出張期間】 2006年10月8日～2006年10月15日

【学会名】 22nd Conference of Alzheimer's Disease International (Berlin, Germany)

【発表者名】 Haruka Otsu, Shigeko Takayama, Yoko Handa, Chiaki Ogawa, and Saori Nomura

【発表論文名】 Wandering Behavior in People in Nursing Homes and in Private Homes

【趣 旨】 Purpose: This study aimed to compare similarities and differences of wandering behaviors between people in nursing homes and in private homes.

Methods: The participants in the study were twelve people with Alzheimer's Disease: ten in nursing homes and two who lived in their own private homes. The former participants were interviewed immediately after wandering behaviors about why they wandered and what they were doing. In the latter case, one of the family members of wanderers at private homes who was a major caregiver answered the same questions based on their recollections. Data analysis was carried out qualitatively.

Results: Twelve people participated, 5 males and 7 females. The age was over 65 years old except for one early-onset Alzheimer's disease

patient, and the average was 78.0 years old. Their impairment level was moderate to severe in nursing homes and it was unclear in private homes. Similarity between those participates in nursing homes and private homes were wandering types. There emerged four purposeful types and one purposeless type (*no purpose*) of wandering. The former include *desire to work*, *desire to go home*, *desire for human interaction*, and *physiological factors*. The type of *desire to go home* was observed only in case of wanderers in nursing homes. Two or more wandering types were exhibited by all participants, and each individual combination of types was different. Particular to wanderers in private homes showed expanding field of wandering and high risk situation such as car crash.

Conclusion: With regard to results common to both environments, we were able to identify clearly one purposeless and three purposeful types of wandering behavior by categorizing purposes and reasons stated by wanderers both in nursing homes and in private homes. On the other hand, one special reason was exhibited in people in nursing homes. Moreover, high risk situations happening during wandering were peculiar to wanderers in their own home.