We have so far reported the influence of various stimuli on a higher brain function. Reaction time in a cognitive task is considered to be a good candidate for an indicator to evaluate the influence of a stimulus on a higher brain function. In this study, reaction time was measured in ten healthy male graduate students using an instrument developed by us to display a cognitive task and to measure the reaction time. Based on analysis, focusing to priming effects, of the results in the reaction time, a model for the cerebral cognitive-task processing has been proposed. Moreover processing time in each processing stage in the model has been estimated from the reaction time measured. The model for a cerebral cognitive-task processing proposed in this study would be remarkably useful in analyzing the higher brain function and in specifying a processing stage which is influenced by a stimulus.

PC3-6 Factors Influencing Symptoms of Morning Sickness

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The situations surrounding pregnant women are getting worse and the symptoms of morning sickness are more severe than 10 years ago. We have consequently examined the relationship between the physiological and mental environments of pregnant women and symptoms of morning sickness.

The subjects were 102 pregnant women, of whom 47% were 29 years or younger, 33% were between 30 and 34 years of age, and 20% were 35 years or older.

It was found that pregnant women had feelings of instability and were under stress and 90% of pregnant women appealed Sleepiness, 82 % of whom had feelings of the stomachache, 82% vomiting and 88% were tired.

The factors underlying morning sickness were "living conditions in terms of the economic, working and household situation", "human relationships with friends, family members, and fellow workers", and "health conditions before childbirth". The "economic situation" and the question of "whether to continue working or not" were found to be particularly deeply related to morning sickness. Stress tended to be more severe in women who had economic insecurity and in those who continued to work.

PC3-7 The Relationship between Psychosocial Stress and Biomedical Parameters Regarding Health Status among Public School Workers

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The aim of this study was to examine the relationship between psychosocial stress and biomedical parameters regarding the heath status among apparently healthy subjects. Out of one thousand nine hundred forty-one public school workers in Kyushu and Okinawa, Japan who were admitted to a hospital for medical check-ups between November 2004 and March 2005, 1499 workers responded to the questionnaires which assessed the degree of stress response (i.e. stress score), and the degree of stress tolerance capacity (i.e. stress intolerance score; IMPS and IMST, respectively). 1201 workers (684 men and 517 women) excluding 298 who were taking medication for hypertension, hyperuricemia, hyperlipidemia and diabetes or had a value for glycosylated hemoglobin (HbA1c) higher than 6.0 percent, or were without a job, were analyzed.

An increase in stress score was positively associated with an increase in both body fat percentage and glycosylated hemoglobin values among men, while it was positively associated with an increase in the concentration of plasma triglyceride among women. An increase in stress intolerance score was positively associated with an increase in body fat percentage among men, while it was positively associated with an increase in body weight, body mass index (BMI) and body fat percentage among women. The value for glycosylated hemoglobin was significantly correlated with stress score even after controlling for age, occupation, BMI, alcohol consumption, smoking and exercise among men.

Psychosocial stress seems to be associated with obesity and unfavorable glycemic change for men, while a decrease in stress tolerance capacity resultant from a lack of social supports, faulty lifestyles and negative attitudes toward life seems to be associated with obesity for women. The efforts to manage one's psychosocial stress and increase stress tolerance capacity may contribute to the prevention of obesity and type 2 diabetes mellitus.

PD1-1 Quantitative Analysis of Arterial Calcification with X-ray Photogram

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Vascular calcification is commonly associated with aging. Quantification of calcium accumulation in vessel walls is important in understanding the mechanisms of vascular calcification. We have measured calcium contents in arteries that were dissected from cadavers by using atomic emission spectrometry. However, this method is troublesome and cannot be applied to *in vivo* measurement. Therefore, we developed a facile method to quantify calcium contents with X-ray photogram. In this method, brightness of X-ray images of arteries was quantitatively analyzed, and relative calcium content was calibrated with standard samples, whose calcium contents were known. Thereby, we determined calcium content in the arteries extirpated from Japanese and Thai, and discussed site-dependency, age-dependency and racial difference of calcium accumulation. As a result, the brightness of X-ray image was correlated with calcium content measured by using atomic emission spectrometry. By comparison in a bifurcation of artery, calcium was highly accumulated in the branching site. In both of Japanese and Thai, calcium contents of arteries were increased with human age. The increase of calcium in Thai was shown in younger sample than Japanese. The method we developed was validated by comparison between our results and previous findings. Furthermore, the method has possibilities for *in vivo* measurement with X-ray computed tomography, and will provide useful information for understanding human aging.

PD1-2 Antidepressant-like Effects of *Lycii Radicis Cortex* and Betaine in an Animal Model of Depression

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The forced swimming test (FST) is an animal model that is widely used as a behavioral screening test for antidepressant activity of new compounds. The purpose of present study was to examine the effect of L. *chinense* Mill. (LRC) and betaine (BT), one of the main components from LRC on immobility and neurochemical change in the FST in the rat. LRC (100 mg/kg, i.p.) and BT (30-100 mg/kg i.p.) significantly decreased the immobility time in the FST, indicating a possible antidepressant-like activity. LRC (100 mg/kg) and BT-HCl (100 mg/kg) significantly increased 5-HT levels in the hypothalamus of rats exposed to FST. BT-HCl (100 mg/kg) significantly increased 5-HT levels in the hippocampus of rats exposed to FST. These results demonstrated that improvement in the behavioral changes after LRC and BT administration may be mediated by elevation of 5-HT level in the hypothalamus and hippocampus. The present results suggest that the efficacy of LRC and BT in an animal model of depression may ultimately help to explain their efficacy for the treatment of human depression.

PD1-3 Association between Polymorphisms within the Apolipoprotein E Receptor 2 Gene and Sporadic Alzheimer's Disease in a Japanese Population

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We have discovered that apolipoprotein E (apoE) receptor 2, a member of the low density lipoprotein receptor family, binds apoE-containing lipoprotein and is predominantly expressed in the brain. The human gene for apolipoprotein E receptor 2 consists of 19 exons within 60 kb on chromosome 1p34, and its genomic organization is closely similar to that of the low density lipoprotein receptor gene. Genetic studies have shown that inheritance of apoE4, one of the apoE isoforms, is a significant risk factor for onset of Alzheimer's disease, decreasing the age of onset and the duration of disease. In the present study, we screened polymorphisms of the apolipoprotein E receptor 2 genes in Japanese patients with sporadic Alzheimer's disease and normal subjects. Our results revealed seven novel polymorphisms in the apolipoprotein E receptor 2 gene. Two are triplet repeat length polymorphisms in the 5'-untranslated region (c.113 (CGG) 6-8) and exon 1 (c.276 (CTG) 10-11: L10-11). Other two replace amino acids in the apolipoprotein E receptor 2 protein (c.374G>T: E46D and c.1132G>A: C299Y), and three are synonymous polymorphisms (c.977C>T: R247R, c.1346C>T: D370D and c.3018G>T: P927P) in the coding region. Although these polymorphisms were not significantly associated with Alzheimer's disease, our current data