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PUBLISHED BY TOHOKU UNIVERSITY MEDICAL PRESS, SENDAI, JAPAN
Urinary Excretion of Ceruloplasmin Is Elevated in the Subjects with “Borderline Glucose Tolerance Test”

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To examine whether or not there are any renal alterations in subjects with borderline glucose tolerance and in patients with non-insulin dependent diabetes mellitus (NIDDM) classified by the criteria of Japan Diabetic Association, urinary excrections of plasma proteins including albumin, ceruloplasmin (Cerulo) and IgG were measured in timed overnight urine samples. Eighty middle-aged, non-obese, normotensive, untreated men with urinary albumin excretion rates below 20 $\mu$g/minutes, $\beta_2$-microglobulin excretion rates below 140 $\mu$g/minutes and creatinine clearance values exceeding 80 ml•min$^{-1}•(1.73$m$^2)^{-1}$ were included in this study. Three groups were defined according to the results of 75 g oral glucose tolerance test (OGTT) as follows: D group, 10 subjects with NIDDM; B group, 40 subjects with “borderline glucose tolerance test” and N group, 30 subjects with normal glucose tolerance. The fractional clearance ($\Theta$) of Cerulo, but not albumin and IgG, was elevated in 37.5% of the B group compared with the upper limit of that of the N group. Furthermore, $\Theta$-Cerulo and $\Theta$-IgG increased in the D group compared with those of the N and the B groups. Recently, we found that $\Theta$-Cerulo and $\Theta$-IgG increased in healthy volunteers when GFR was elevated by acute protein loading and that increase in $\Theta$-Cerulo is remarkable than increase in $\Theta$-IgG. The present result, taken together with our recent finding mentioned above, suggests that increases in $\Theta$-Cerulo and $\Theta$-IgG may not be due to an impairment of charge selectivity in the glomerular basement membrane, but due to an increase of intraglomerular hydraulic pressure.

Key words--- ceruloplasmin; borderline diabetics; diabetic nephropathy

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Heights of the Lumbar Intervertebral Discs Related to Age in Turkish Individuals

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The present study investigated the changes in the heights and anteroposterior diameters of human intervertebral discs by means of measurements from radiographs, to determine age changes of lumbar intervertebral discs in Turkish people. Measurements of anterior and posterior disc heights and disc depths were made for 200 clinic subjects of different age groups from lateral radiographs. The height of the intervertebral disc increases with aging only in males and the disc depth in both sexes. Our findings generally corroborate previous studies. It is suggested that the different findings from the present study might be peculiar to the society.

Key words--- age; intervertebral disc; X-ray measurement

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The Position and Size of Radiological Nephrogram in Japanese Preschool Children

HIROYUKI KAYABA, JUNICHI CHIHARA, OSAMU URAYAMA, YOSHIMI KOBAYASHI, KOHEI HONDA, NORIHIRO SAITO, HIROMI TAMURA, YOSHIYUKI FUJIWARA, HIROAKI YOSHINO, TATSUZOU HEBIGUCHI and TETSUO KATO

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The early detection of retroperitoneal masses in children, such as neuroblastoma, Wilm's tumor, hydronephrosis and cystic renal diseases, has a great clinical importance for the improvement of their prognosis. The kidney is often affected in its size or position by these lesions, and occasionally allows clinicians to find a clue to reach the correct diagnosis before the patient become symptomatic. Since we had no clinically available nomogram on the position and the size of the kidney in Japanese children, we measured the size and position of the kidneys on plain abdominal X-rays in 347 Japanese children in preschool years with a special attention to their relationship with the spine. As a result, the nomogram showed age dependent growth of the kidneys keeping almost the same ratio with the spine, while the distance between the upper pole of the kidney and the spine remained less than 10 mm in all age groups. Our nomogram may be useful not only for picking up the malposition of the kidneys but also for the follow up of the patients with chronic renal diseases affecting the growth of the kidneys.

Key words--- children; kidney; position; retroperitoneal mass

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Similarity and Dissimilarity in Mode and Mechanism of Action between YT-146, a Selective Adenosine Receptor A_2 Agonist, and Adenosine in Isolated Canine Hearts

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To elucidate the differences in mode and mechanism of action between YT-146, a highly selective adenosine A_2 receptor agonist, and adenosine, we compared their effects on coronary circulation and myocardium and modifications of these effects by glibenclamide, a blocker of ATP-sensitive potassium (K) channels, in three kinds of isolated, blood-perfused canine heart preparations. YT-146 and adenosine were injected i.a. In all preparations both YT-146 and adenosine increased coronary blood flow and in this respect YT-146 was about 5 times as potent as adenosine. The increase in blood flow caused by adenosine was transient, whereas that produced by YT-146 was biphasic; the transient increase was followed by a sustained one. In isolated, blood-perfused sinoatrial (SA) node preparations, YT-146 failed to affect sinus rate, whereas adenosine reduced sinus rate by about 38% at its maximum effect. In isolated, blood-perfused atrioventricular (AV) node preparations, when injected into the artery supplying the AV node, YT-146 exerted no effect on AV conduction time, whereas adenosine prolonged AV conduction time by about 17% at the maximum effect. In isolated, blood-perfused papillary muscle preparations, the force of contraction was affected by neither YT-146 nor adenosine. In the same preparations the effect of YT-146 in increasing coronary blood flow was antagonized by glibenclamide in such a manner that the maximum increase was suppressed, but that of adenosine was not. Reactive hyperemia induced by ischemia for 30 seconds was not affected by glibenclamide. These results suggest that although both YT-146 and adenosine produce an increase in coronary blood flow via adenosine A_2 receptors, the opening of ATP- or glibenclamide-sensitive K channels is involved in the action of the former, but scarcely in the action of the latter. The opening of ATP- or glibenclamide-sensitive K-channels is less likely involved in reactive hyperemia.

Key words--- adenosine A_2 receptor agonist; ATP-sensitive K-channel; coronary blood flow; YT-146

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Detection of TTV in Peripheral Blood Mononuclear Cells of Intravenous Drug Users

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In order to further elucidate the tropism of the novel hepatitis TT virus (TTV) we investigated 22 intravenous drug users (IVDU) for the presence of viral DNA in their peripheral blood mononuclear cells (PBMC) by means of seminested polymerase chain reaction using a set of primers specific for the conserved region of its genome. We detected TTV DNA in 63% of those individuals who had previously been found positive for the agent in their serum, whereas the three remaining ones not displaying TTV DNA in their serum and hence, serving as controls also proved negative in their PBMC. The results presented here further support earlier findings by other authors and their conclusion as to the virus employing a parenteral route of transmission. Further investigation will be required in order to clarify the mechanism of viral infection.

Key words--- TTV; PBMC; IVDU
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Do People with Similar Waist Circumference Share Similar Health Risks Irrespective of Height?

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In order to know whether people of similar waist circumference having similar health risks irrespective of height, comparisons of odds ratios for coronary risk factors and fatty liver by echogram were made between the subjects from the first (short, =<164.5 cm) and fourth quartiles (tall, >=172.4 cm) of height from both the third (84.5~<89 cm) and fourth (>89 cm) quartiles of waist circumference from 3117 men (ranging 35-64 years old) who underwent routine health examinations in Tokyo. After adjusting for age, and with tall subjects in the same waist circumference category as reference, the odds ratios were significantly higher for the short people from the third quartile of waist circumference for the risk of hypertension (1.62, 95% CI 1.002-2.63), hyperglycemia (3.34, 1.27-9.95) and fatty liver (2.12, 1.30-3.50). However, there were no significant differences in odds ratios of any risk health risks between short people and tall people from the fourth quartile of waist circumference. Although people of prominently large waist circumferences may have similar health risks of the above items irrespective of height, short people have higher health risks than tall people in the moderately large waist circumference population of Japanese men.

Key words--- waist; height; health risks
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Changes in Serum Hypoxanthine Levels after Walk Loads at Mild to High Intensity in Healthy Humans

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Effect of mild intensity exercise on the serum levels of hypoxanthine was studied. Eighteen healthy subjects performed 2 to 4 bouts of 5 minutes walk load at different intensities. At the beginning, thirteen of them walked at intensity more than 80% of the maximum. The serum levels of hypoxanthine increased to the levels of more than 6 times of resting values showing a peak at 10 to 20 minutes after the completion of the walk load. In 62 bouts of the walk load by 18 subjects, statistically significant relationship was demonstrated between intensity of the walk load and increase in serum concentration of hypoxanthine at 10 minutes after the completion of the walk load with correlation coefficient of 0.556. The serum hypoxanthine levels were significantly increased by the walk load even at mild intensity between 41 and 60%. Increment in the serum hypoxanthine concentration also showed positive and statistically significant correlation with physiological cost index. These results suggest that the serum levels of hypoxanthine increase following mild as well as moderate to submaximal intensity of exercise, and its increment may be used as an indicator of energy balance in the muscle during exercise at mild to high intensity.

Key words--- hypoxanthine; exercise; physical activity; physiological cost index

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Relation between Changes in Serum Hypoxanthine Levels by Exercise and Daily Physical Activity in the Elderly

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Effect of exercise at mild intensity on the serum levels of hypoxanthine was studied in eleven healthy elderly subjects. They were divided into the active and sedentary groups according to their daily physical activity. They performed exercise testing to walk for 5 minutes keeping heart rate at approximately 70% of the maximum heart rate. Mean intensity of exercise estimated according to Karvonen's formula in the active or sedentary group was 41.8±9.6% or 34.1±6.1%, respectively. In the sedentary group, the serum hypoxanthine levels at 10 minutes after completion of walk load was significantly higher than that before exercise. Changes in the serum hypoxanthine levels in the active and sedentary groups were –0.97±1.36 and 0.80±0.57 μmol/liter, respectively (p<0.05). This result suggests that mild intensity exercise increases the serum hypoxanthine concentration in the elderly leading inactive daily life, and physical activity suppresses an increase in the serum hypoxanthine levels by mild exercise.

Key words--- hypoxanthine; exercise; physical activity

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The Participation of IL-8 in the Synovial Lesions at an Early Stage of Rheumatoid Arthritis

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Synovial tissues from Rheumatoid Arthritis (RA) were divided into three groups based on their histopathological findings and compared for their expression of IL-8 and monocyte chemotactic and activating factor (MCAF) by using immunohistochemistry and in situ hybridization. The levels of IL-8 as well as those of MCAF were markedly higher in the synovial fluid from RA joints. Synovial lining cells (SLC) and macrophages had an ability to produce IL-8 at an early phase of the disease. The presence of MCAF was restricted in macrophages at this stage. On the other hand, the production of IL-8 as well as MCAF were prominent in most components of the joints such as SLC, migrated monocytes, sublining fibroblastoid cells, endothelial cells or migrated neutrophils at an active phase. The expression of IL-8 or MCAF was low in fibrotic synovitis of RA. These data indicate that IL-8 generated from SLC and macrophages may participate to the inflammatory process in the early synovitis of RA.

Key words--- rheumatoid arthritis; interleukin-8; monocyte chemotactic and activating factor; in situ hybridization; immunohistochemistry

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Decrease in Multiple Sclerosis with Acute Transverse Myelitis in Japan

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Acute transverse myelitis (ATM) may be a manifestation of multiple sclerosis (MS) and was reported to be more common among Japanese MS patients than in Caucasian MS patients. Recently there are arguments whether clinical manifestations of MS may have changed. Therefore, we studied the frequency of ATM in MS and the clinical subtypes of MS in 86 clinically definite MS patients whose onsets were in 1970-1979, 1980-1989, and 1990-1998 in Sendai City, Japan. Fifty-six of the patients were women and 30 were men. Forty-four patients had the conventional form of MS (C-MS) commonly seen in Western countries, and 42 had optic-spinal or spinal forms of MS (OSS-MS). Twenty MS patients had ATM, and all of them were belong to optic-spinal form of MS. ATM was not seen in any cases of C-MS. The mean onset age (years) of the clinical subtypes was 25.5 in C-MS, 34.1 in OSS-MS without ATM, and 30.9 in OSS-MS with ATM. Among the patients whose onset of the disease was in 1970-1979, 60.0% of them were cases of OSS-MS with ATM, but such cases were markedly decreased to 5.3% in 1990-1998. In contrast, the frequency of C-MS increased to 63.2% in 1990-1998 compared with 20.0% in 1970-1979. Analysis of the data by the year of birth of the patients showed similar results. Our data suggest that the frequency of ATM in MS markedly decreased, and that of C-MS increased during the last 30 years in Sendai, Japan. Since the genetic background of Japanese has not changed, some exogenous factors, such as food, infectious microorganisms, and chemicals in our environment, may be responsible for the change.

Key words--- multiple sclerosis; acute transverse myelitis; Japanese; optic-spinal form

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A Case of Traumatic High Thoracic Myelopathy Presenting Dissociated Impairment of Rostral Sympathetic Innervations and Isolated Segmental Sweating on Otherwise Anhidrotic Trunk

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A 3 year-old boy developed flaccid paraplegia, anesthesia below T3 and impaired vesical control immediately after a car accident. Three months later, the pupils and their pharmacological reactions were normal. Thermal sweating was markedly reduced on the right side of the face, neck, and shoulder and on the bilateral upper limbs, and was absent below T3 except for band like faint sweating on T7 sensory dermatome. The left side of the face, neck and shoulder showed compensatory hyperhidrosis. Facial skin temperature was higher on the sweating left side. Cervico-thoracic MRI suggested almost complete transection of the cord at the levels of T2 and T3 segments. We discussed the pathophysiology of the dissociated impairment of rostral sympathetic innervations and isolated segmental sweating on otherwise anhidrotic trunk.

Key words--- high thoracic myelopathy; rostral autonomic innervation; pupil; sweating

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