CONTENTS

Regular Contributions

Hepatic and serum bile acid compositions in patients with biliary atresia: A microanalysis using gas chromatography-mass spectrometry with negative ion chemical ionization detection. D. Abukawa, M. Nakagawa, K. Iinuma, M. Nio, R. Ohi and J. Goto

Effects of treatment with nilvadipine on cerebral ischemia in rats. S. Kawamura, Y. Li, M. Shirasawa, N. Yasui and H. Fukasawa

Age-related histologic alterations after prednisolone therapy in children with IgA nephropathy. H. Tanaka, S. Waga and M. Yokoyama


Utilising an ileal segment in the posterior urethral replacement procedures using anal sphincter to provide continence in dogs. Y. Yýlmaz, M. Aydin, B. Bakir, M. K. Atilla, Ö. Odabaş and S. Aydin

Deconvolution of chemiluminescent emission curve associated with phagocytosis into three logarithmic normal distributions. N. Okazaki, J. Hirosawa, N. Saito and T. Sato

Case Report

A transient emergence of hepatic granulomas in a patient with chronic hepatitis B. A. Kanno and K. Murakami

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Hepatic and Serum Bile Acid Compositions in Patients with Biliary Atresia: A Microanalysis Using Gas Chromatography-Mass Spectrometry with Negative Ion Chemical Ionization Detection

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Hepatic and serum bile acids in five patients with biliary atresia were preoperatively determined by microanalysis using gas chromatography-mass spectrometry with negative ion chemical ionization detection. The hepatic content of total bile acids was markedly elevated (3079±711 nmol/g protein), most of which were primary bile acids. Accumulation of unconjugated bile acids (2.93% to 4.62% of the total) was observed in the liver tissue of these patients, although only trace amounts were detected in their sera. The ratio of glycine-conjugated to taurine-conjugated bile acids was 0.44±0.18 in liver tissue and 0.79±0.52 in serum and these values were significantly lower than those of controls. This study has shown that the composition of bile acids in serum does not reflect that in liver tissue faithfully. The accumulation of these hydrophobic bile acids may contribute to initiating or exacerbating liver injury in infants with cholestatic liver diseases.

Key words--- hepatic bile acids; biliary atresia; gas chromatography-mass spectrometry

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Effects of Treatment with Nilvadipine on Cerebral Ischemia in Rats

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The protective effects of a Ca\(^{2+}\) antagonist, nilvadipine, on focal cerebral ischemia were studied in male spontaneously hypertensive rats. The animals received either nilvadipine (3mg·kg\(^{-1}\)·day\(^{-1}\)) or a vehicle subcutaneously. Group 1 (n=11) was treated for 7 days, and Group 2 (n=11) for 14 days. The middle cerebral artery was occluded on the 6th (Group 1) or 13th (Group 2) day of the treatment, and neuropathological outcomes were quantified 24 hours later. The mean arterial blood pressure was significantly reduced with nilvadipine to normal levels. The % infarct volumes of Groups 1 (37±2) and 2 (34±3) were significantly less than those of their controls (39±3 [n=11] and 40±4 [n=12], respectively), although the difference between Groups 1 and 2 was not significant. When infarct areas were compared in each of 8 coronal sections, the infarct size had decreased in the 5 posterior sections in Group 2, but only in 2 sections of Group 1. A significant decrease in the edema volumes was observed in Group 2, but not in Group 1. Thus, nilvadipine provided protective effects against cerebral ischemia in rats having chronic hypertension, and the effects were dependent on the duration of treatment.

Key words--- antihypertensive therapy; Ca\(^{2+}\) entry blocker; focal cerebral ischemia; spontaneously hypertensive rats

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Back to CONTENTS.
Age-Related Histologic Alterations after Prednisolone Therapy in Children with IgA Nephropathy

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To examine whether the age of onset of clinical symptoms in childhood IgA nephropathy may affect changes of histologic alterations after receiving prednisolone therapy, an evaluation of glomerular lesions seen in biopsy specimen was done. Eighteen children with IgA nephropathy met study criteria. They received alternate-day prednisolone therapy within a month after the first renal biopsy. Renal biopsies were done at presentation and repeated at a mean interval of 23 months. The patients were grouped as follows: Group A, 8 cases which showed clinical symptoms at the age of 9 or under; Group B, 10 cases which showed the symptoms at the age of 10 or over. At the initial presentation, histologic indices including a percentage of mesangial area occupying glomeruli (the M/G ratio) in the 2 groups did not show a significant difference. The activity score and the M/G ratio in the group A decreased significantly at the second biopsies (4.6±0.9 vs. 1.8±1.0 and 25.7±6.1% vs. 21.4±2.7%, respectively), while in the group B did not. These observations may indicate the age of onset of clinical symptoms in childhood IgA nephropathy affects changes of histologic alterations after receiving prednisolone therapy.

Key words--- age-related character; childhood IgA nephropathy; histologic alterations; mesangial matrix area; prednisolone therapy
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Back to CONTENTS.
Concentration of Metal Elements in the Blood and Urine in the Patients with Cementless Total Knee Arthroplasty

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Titanium (Ti), cobalt (Co) and chromium (Cr) element concentrations in the whole blood and urine specimen in 40 patients with cementless total knee arthroplasty were determined by the electrothermal atomic absorption spectrophotometry. Their ages ranged from 55 to 78 years (mean, 65 years). Twenty of them had loosening of prosthesis and underwent revision surgery, including 4 subjects with Ti-6Al-4V alloy prosthesis and 16 subjects with Co-Cr-Mo alloy prosthesis. The other 20 patients had well-functioning stable prosthesis, including 5 subjects with Ti-6Al-4V alloy prosthesis and 15 subjects with Co-Cr-Mo alloy prosthesis. The mean duration of prostheses implantaion in patients with loosened or well-functioning prostheses were 6.5 and 4.0 years, respectively. The control group consisted of 20 age-matched normal subjects who did not undergo any metal implant surgery. Analysis of variance showed that the metal element concentrations in the whole blood, either Co, Cr or Ti, was statistically higher in the patients with loosened prosthesis than the other two groups. However, the metal element concentrations in the urine did not show any difference. The linear regression analysis showed a moderate positive relationship between the metal element concentrations, either Co or Cr elements, in whole blood and urine only in the patients with loosened prostheses. In conclusion, elevated concentration of metal elements may indicate a loosening of prosthesis while the clinical significance of the metal element concentration in the urine needs further investigation.

Key words--- metal elements; cementless; total knee arthroplasty; blood; urine

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Presented in part at the 64th annual meeting of the American Academy of Orthopaedic Surgeons (AAOS) in San Francisco, CA, USA, February 13-17, 1997.
Utilising an Ileal Segment in the Posterior Urethral Replacement Procedures Using Anal Sphincter to Provide Continence in Dogs

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We aimed to replace an ileal segment in the place of posterior urethra using the anal sphincter as a continence mechanism. The experiment was carried on three male street dogs. In the first stage, only urethral replacement with an ileal segment was done and pulled through the anal sphincter in a male dog to see if anal sphincter would do any help for continence. A protruding stoma was created on the perineum. Perineal end of the ileal segment was sutured to the bulbous urethra in the other two male dogs to provide urethral patency in the second step of the operation. The dog in which the first operation was made gained continence on the 12th postoperative day. The other two male dogs, in which ileourethral anastomosis were made, became continent on the postoperative 12th and 15th days. No residual urine was found by catheterisation performed after urination. In controls, neither the stoma nor the anastomosis sites developed stenosis. This procedure may be applied in patients with complete incontinence who can not be corrected by any other surgical procedures, and a very good cosmetic result may be obtained.

Key words--- urethral replacement; anal sphincter; continence

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Back to CONTENTS.
Deconvolution of Chemiluminescent Emission Curve Associated with Phagocytosis into Three Logarithmic Normal Distributions

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The chemiluminescent emission reaction dependence on the activity of phagocytosis is well known. However, this method is not used to diagnostically in clinical assessment because the relationship between phagocytizing activity and chemiluminescent intensity has not been clearly established. Therefore, we attempted to analyze quantitatively the chemiluminescent emission curve by the phagocytosis of leukocytes. Mathematical assessment of the emission curve with respect to time was performed by fitting the curve to several regression models using the unweighed non-linear least squares method. A triple logarithmic normal distribution model provided a reasonable goodness of fit to the measured emission curve. The first component, about 5% of the calculated total counts, was assumed to arise from monocytes activity, the second component, about 20% from eosinocytes activity and the third component, up to 75%, from neutrophils activity. This method seems promising as a means for assaying whole blood without the need for pretreatment and for the providing a valid index that is independent of the technical differences between laboratories.

Key words--- whole blood; phagocytosis; chemiluminescence; curve-fitting

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Back to CONTENTS.
A Transient Emergence of Hepatic Granulomas in a Patient with Chronic Hepatitis B

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So far there were no reports but one on a hepatic granuloma in chronic hepatitis B virus (HBV) infection. We present a case of chronic hepatitis B with a transient emergence of hepatic granulomas. The case was a 35-year-old male who had chronic hepatitis with persistent hepatitis B surface antigen in the sera. A liver biopsy showed noncaseating granulomas in the parenchyma and a mild portal enlargement with mononuclear cell infiltration. The cellular components of the granulomas were mainly cluster of differentiation 68-positive macrophages with a few lymphocytes in the periphery. However, no granulomas were found in a liver specimen obtained three weeks after the first liver biopsy. Possible disorders causing hepatic granulomas such as tuberculosis, sarcoidosis, drugs and other infectious diseases were ruled out by clinical, serological and histopathological examination. Thus it is possible that the transient emergence of hepatic granulomas is a phenomenon related to chronic HBV infection.

Key words--- hepatic granuloma; chronic hepatitis B

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Back to CONTENTS.