

## P. Pediatrics

### 2216

Te-99m PHYTATE LIVER SCINTIGRAPHY AND CONGENITAL BILIARY ATRESIA.  
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After the report of Kasai's hepatic port-enterostomy the subject of treatment has been changed from the surgical technique to the management of secondary liver cirrhosis and portal hypertension in congenital biliary atresia. Liver scintigraphies using Te-99m phytate have been performed as a routine clinical study for detecting the liver cirrhosis and portal hypertension. The patients with CBA were divided in 3 groups, Group I; the patient with no jaundice and good bile flow postoperatively, Group 2; the patient with jaundice and poor bile flow, Group 3; the patient with jaundice and no bile flow. Liver/Spleen Ratio calculated by liver counts/spleen counts of the same area on posterior image was used to show the extent of liver cirrhosis, and it has been kept relatively high level in Group I, but decreased under 0.7 in the dead cases of Group 2 and 3. L'/S' Ratio calculated by matrix of the liver/ matrix of the spleen has kept high in Group I, but low in Group 2 and 3. Because of the fact that the cases of low L'/S' Ratio had the esophageal varices endoscopically, this Ratio was seemed to show the extent of portal hypertension.

### 2218

FOURIER PHASE ANALYSIS IN PAEDIATRIC CARDIOLOGY. David L. Gilday Department of Radiology, University of Toronto & Division of Nuclear Medicine, The Hospital for Sick Children, Toronto, Canada.

Fourier Phase Analysis has rapidly become an integral parts of Nuclear Cardiology. In children the role of phase analysis is not just useful in determining malfunctioning areas of the ventricle but also in assessing the exact portion of the image which is ventricle. This is important in congenital heart disease, either before or after surgical correction, to help delineate the atria and ventricles.

In conduction abnormalities the delay in on set of contraction is readily evident. Statistical analysis of the mean, variance, kurtosis and skewness of the number of pixels in any phase range is becoming a useful indicator of the functional integrity of the ventricle.

Applying the same analysis to non periodic physiologic functions such as the "First Pass" of the radionuclide through the heart has potential advantages in detecting abnormal flow patterns such as ventricular septal defects with left to right shunts. In the kidney the flow of a tracer such as Tc-99m DTPA can be monitored and the cortical, Medullary, Pelvic and ureteral flow in the same phasis manner.

In the final analysis phasic analysis gives us a new function prospective of changing physiologic functions.

### 2219

99m Tc DTPA scan compared to 99m Tc DMSA scan in renovascular hypersion.

I. Gordon, R. de Bruyn, D.A. Stringer.

Paediatric patients with systemic hypertension are investigated extensively. 10 patients with renovascular hypertension have undergone intravenous urography, abdominal ultrasound, selective renal and inferior vena cava venous renin sampling and arteriography including selective renal arteriography as well as both a 99m Tc DTPA scan and separate 99m Tc DMSA scan. The diagnosis of renovascular hypertension has been established on either the arteriographic findings or on the selective venous renin results or a combination of both. Analysis of the DTPA scans include

1. Perfusion during the first 40 seconds of the whole kidney as well as segmental areas of kidney.
2. Whole kidney transit time analysis.
3. Differential renal function at 1 minute has been estimatee.

The DMSA scans have been assessed solely by bisual analysis of the analogue images, i.e. posterior and both posterior oblique views. The results of these analyses will be presented showing that segmental renal pathology is only detectable on DMSA scans and that the first imaging investigation of any patient with systemic hypertension should be a 99m TC DMSA scan.

### 2220

Investigation of the Samll Lung in Paediatrics.

I. Gordeon. Ph. D.

This study evaluates the role of 81m Krypton ventilation/99m Technetium macroaggregate ( $\dot{V}/\dot{Q}$ ) lung scans in the small lung. 18 children were admitted for investigation, each child underwent a barium swallow, chest fluoroscopy and chest radiography; in selected cases pulmonary angiography, bronchoscopy and bronchography were undertaken.

There were 3 children with an absent pulmonary artery, 2 children with lung aplasia, 2, with lobar aplasia, 1 child with Meckel's syndrome, 10 with hypoplastic lungs. In this group of children with hypoplastic lungs, 2 sequestrated segments were diagnosed.

The V/Q scans when taken in conjunction with the chest radiograph allowed accurate diagnosis in all 18 children.  $\dot{V}/\dot{Q}$  lung scans are an early essential investigation of the samll lung.