

2001 **TECHNEGAS-LABELLED RICE AND WATER AS PHYSIOLOGICAL NON-ABSORBED GASTRIC MARKERS.** W. M. Burch, R. Browitt, D. Crellin, S. Kaushik. Division of Clinical Sciences, John National University, Canberra, 0200, Australia. The nanometer-sized carbon particles in Technegas are easily colloided with almost 100% efficiency from the carrier Argon gas by electrostatic precipitation onto a salt coated stainless steel grid with a few ml of water cooked into wholemeal rice, the particles become firmly incorporated in the grains. The radioactivity subsequently ingested, may be visualised as a bolus passing the full length of the g-i tract in the food mass, with negligible absorption measured in the blood at two hours. If the Technegas coated grid is rinsed into water which is then drunk, the activity tracks similarly through both the small and large bowel unabsorbed. Both solid and liquid phase agents have been tested in 6 normal subjects and found to produce characteristic gastric emptying profiles and good large bowel visualisation. Results from a phase I clinical trial currently in progress and involving patients with known g-i disorders will be presented.

2002 **Comparison between planar and SPECT of Tc-99m technegas scintigraphy in pulmonary emphysema** Katashi Satoh, Masatada Tanabe, Kazue Takahashi, Yoshihiro Nishiyama (Dept. of Radiology, Kagawa Med School) The images of planar and SPECT of Tc-99m technegas scintigraphy were compared in 12 pulmonary emphysema cases. They inhaled technegas in several tidal volume breaths in the supine position. The images were divided into areas of heterogeneity, hot spots or defects in SPECT. In 8 of 12 patients, SPECT images showed hot spots and defects. In 6 of the 8 the images were same as on planar images, while in the other 2 SPECT showed more detailed findings than by planar images. In 1 patient showing hot spots and 3 showing heterogeneity, SPECT images were the superiority to planar images. I conclude that SPECT were superior to planar in mild cases but same in moderate to severe cases.

2003 **ROLE OF RADIONUCLIDE VENOGRAPHY IN SUPERIOR VENA CAVA SYNDROME** Asif M. Mahmud, T. Isawa, T. Teshima, T. Hirano, M. Miki and T. Nukiwa. (Dept. of Respiratory medicine, Inst. of Development, Aging and Cancer, Tohoku Univ.)

RI venography using ^{99m}Tc -MAA was performed on 107 patients with SVC syndrome and 10 healthy subjects. Collateral circulation was seen in 37 cases. In 20 cases, jugular venous reflux (JVR) was observed as the only sign suggestive of SVC obstruction. Certain indices viz transit time (TT), time of half peak count (TH) and peak count ratio (PC Ratio) were defined and calculated by computer. Comparison of the values of the indices among 3 groups of patients and normal subjects showed statistically significant difference. These indices and JVR have a potentially important role in the early diagnosis and assessment of clinical state of patients with SVC syndrome.

2004 **153-Sm-EDTMP for pain palliation of metastatic bone pain.**

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Options for palliation of metastatic bone pain are: a) conventional analgesia, b) external radiotherapy, c) radionuclide treatment. Multiple or even disseminated metastases causing bone pain are treated by analgesics or radionuclides. 153-Sm-EDTMP can be expected to provide significant advantages for radionuclide therapy because of its short half-life. 74% of our patients experienced pain relief after one administration, in patients with prostate or breast carcinoma pain relief was observed in about 83%. With a therapeutic dose of 1295 MBq (35mCi) only mild myelosuppression was seen. The results of human studies using 153-Sm-EDTMP are preliminary but very promising. It may be used also for therapy of primary bone tumors as shown in animal experiments.

2005 **BONE MINERAL DENSITY OF CHILDREN WITH BILIARY ATRESIA UNDERGOING LIVING RELATED LIVER TRANSPLANTATION.**

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Children with biliary atresia suffer growth retardation and defective mineralization of the skeleton due to severe liver dysfunction. Living related liver transplantation (LRLT) is a recently developed curative procedure for these patients. The aim of this study was to elucidate the effects of LRLT on bone mineral density (BMD) of the patients with biliary atresia, and relate these values with various biochemical parameters pertinent to bone metabolism. We measured by dual energy X-ray absorptiometry (QDR-2000, Hologic) of lumbar BMD (L2-L4) in 10 patients (3 males, 7 females, ranging in age from 6 mo to 14 Yr (mean age 5.4 Yr)) who underwent LRLT in our hospital between September 1994 and February 1995. All patients had received oral doses of 1- α -hydroxyvitamin D₃ (0.4 - 0.6 mg/kg BW), which were discontinued at least 1 mo prior to surgery. The age- and sex-matched Z score of BMD was calculated, based on the data of normal French children, and were compared with those of the height and weight. The serum levels of 25-hydroxyvitamin D (25(OH)D), 1, 25-dihydroxyvitamin D (1,25(OH)₂D), total calcium (Ca) and alkaline phosphatase (ALP) before and three months after LRLT were measured. All patients showed low values of lumbar BMD before LRLT (-2.46 ± 1.59 , mean \pm SD). Preoperative values of BMD correlated with those of height as well as weight ($r=0.505$ and 0.565 , $p<0.05$, both). After LRLT BMD values increased to -1.79 ± 1.62 , although not statistically significant ($p=0.122$). Serum 25(OH)D levels were invariably low in all patients before LRLT (7.54 ± 1.5 ng/ml), which increased to 16.5 ± 13.5 ng/ml ($p<0.05$) after LRLT. Serum 1,25(OH)₂D levels were 29.3 ± 17.0 pg/ml before surgery, which also increased to 54.8 ± 33.5 pg/ml after LRLT ($p<0.05$). Serum ALP levels were high in all patients (1624 ± 809 IU/L) before surgery, which decreased to 1116 ± 503 IU/L after LRLT ($p<0.01$). There was no significant difference in serum calcium levels (before LRLT: 8.6 ± 0.5 mg/dl, after LRLT: 8.8 ± 0.4 mg/dl, $p=0.1$). Patients with biliary atresia have low bone mass, low serum 25(OH)D and high serum ALP levels, characteristic of hepatic rickets. LRLT improves deranged bone metabolism and will correct growth retardation in these patients.

2006 **RELATIVE CONTRIBUTION OF Ga-67 AND Tc-99m MDP BONE SCINTIGRAPHY FOR THE DETECTION AND ASSESSMENT OF TREATMENT RESPONSE OF OSSEOUS LOCALISATIONS OF Ga-67 AVID LYMPHOMA**

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In a retrospective study it was found in 12 patients that, similar to bone scintigraphy, Ga-67 scintigraphy may be useful for detection of osseous localisations of Ga-67 avid lymphoma. Moreover, Ga-67 scintigraphy probably allows earlier and more direct assessment of treatment response of osseous localisations of Ga-67 avid lymphoma when compared to bone scintigraphy.