programas del sistema utilizando el lenguaje de macroprogramas especialmente diseñado para la creación de protocolos de adquisición y procesamiento.

PRODUCTION OF ^{123}I AT THE CV-28 CYCLOTRON OF IPEN-CNEN/SP

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^{123}I is one of the most used radioisotopes in nuclear medicine due to its nuclear properties which are the most suitable among the radioisotopes of iodine for «in vivo» studies. It substitutes ^{131}I in diagnostic procedures with the advantage of reducing the radiation dose given to the patient. It is used in the sodium iodide form in studies of the thyroid function or incorporated into organic compounds for other applications.

This work shows the results obtained in the routine production of ^{123}I via $^{124}Te(p, 2n)\ ^{123}I$ reaction, using the CV-28 cyclotron (potrons, E_{max} = 24 MeV) at the IPEN-CNEN/SP.

The enriched $^{124}TeO_2$ target (96.2%) was melted on a platinum support (277 mg/cm^2) and was proton-irradiated with currents up to 12 μA.

The separation of ^{123}I was carried out by a dry distilation process with a high frequency induction furrance in the following conditions: 1. Furnace temperature: 764 ± 5° C. 2. Diffusion time: 2 min, 3. Oxygen flow rate: 30-40 ml/min.

The results obtained in seven productions were: production yield = (3.31 ± 0.07) mCi ^{123}I/μAh, 1.7% ^{124}I impurity level in ^{123}I (at EOB), the loss of TeO_2 during each distillation was less than 0.5% and the chemical form of the radioiodine collected in 0.01 N NaOH solution was approximately 100% iodine.

A PET SYSTEM BASED ON A LOW ENERGY PROTON ACCELERATOR AND A ROTATING 3D PET SCANNER

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We have developed a comparatively inexpensive PET system, based on a rotating scanner with two scintillation camera heads, and a nearby low energy electrostatic proton accelerator for production of short-lived radionuclides.

Using a 6 MeV proton beam of 5 μA, and by optimization of the target geometry for the $^{18}O(p, n)\ ^{18}F$ reaction, 750 MBq of 2-^{18}FDG can be obtained. The pet scanner shows a spatial resolution of 6 mm (FWHM) and a sensitivity of 80 $s^{-1}kBq^{-1}ml^{-1}$(3 kcps/μCi/ml.).

We have also developed a new method for three-dimensional image reconstruction. It is a simple but efficient method based on 2D reconstruction of transaxial slices and deconvolution of a position dependent axial spead function. The final images can be obtained using either filtered backprojection or iterative reconstruction methods.

Clinical studies have been performed with aquisition times of 30-40 min. The system will be used for clinical experimental research, primarily oncological studies; i.e. studies of tumour viability and response to different therapy regimes.

SPLENIC RADIONUCLIDE ANGIOGRAPHY IN THE PORTAL HYPERTENSION ASSESSMENT

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The aim ot this study is the presentation of the hepatic and splenic radionuclide angiograms (SRA) in various portal blood flow disturbances, as well as an analysis of the splenic arterio-venous ratio (SAVR) results, obtained as a slope ratio between inflow, arterial and the outflow, venous phases on the splenic TA curve. Splenic radionuclide angiography was performed after bolus injection of 740 MBq of ^{99m}Tc-pertechnetate, using ROTA scintillation camera (Siemens) and MicroDelta computer.

Four types of SRA were established: a) very acute descendent slope (DS) in the controls; b) less acute DS in the patients with LC; c) horisontal venous phase caused by impaired outflow to the portal vein in LC with expressed portal hipertension, collateral circulation and LCEV; d) ascending out flow phase, characterizing the splenic and/or portal venous thrombosis, SAVR values were increased in liver cirrhosis (LC) with esophageal varices (LCEV, n = 10) (6,1 ± 3.4) in comparison to the controls (n = 10) (3.7