

PRNC 33 PUERTO RICO NUCLEAR CENTER The Renogram as a Tool for Evaluating Patients with Cancer of the Cervix Uteri [OPERATED BY UNIVERSITY OF PUERTO RICO UNDER CONTRACT NO. AT (40-11-1852 FOR U.S. ATOMIC ENERGY COMMISSION ---Page Break--- THE RENOGAM AS A TOOL FOR EVALUATING PATIENTS WITH CANCER OF THE CERVIX UTERI Seno Inary sanvian Areuicarions Ovistos, Puerto Rico Neekursn Cearea. University of Peo loo AND The Department of Medicine of The Gussutz Marsan ONcouonte Heel Anant 1 Hooaiot® Kosion vr ano Deranasene sn Magis of tte Sos Twos, Cory Homer, San Juan, PUERTO RICO Ramcisenare Laven Abateat "The renogram as a tool for evaluating patients with cancer of the cervix uteri. 'The purpose of this report is to present data of the incuoperative renogram in the evaluation of the patency of the urinary tract and renal function in patients with cancer of the cervix. This cancer is the leading problem in women in Puerto Rico, especially age 41. Because in a large number of patients, the signs are diagnosed late, the problem of surgical intervention in the case becomes critical for management. The importance for the surgeon to know the patency of the urinary stream is paramount. The urologist wants to know the difference between a blocked tissue that is still functioning and a blocked kidney that is out of order, so that he can decide when to do excisional surgery. The renogram differentiates a nonfunctioning kidney from a blocked kidney, which clarification is of utmost importance with the excretory azogeam. Secondly, patients with advanced pelvic cancer, preferably cancer of the cervix, were selected. The subjects received an injection of Y mCi per 8 kilograms weight. The radioactivity levels were followed up for each renal avenue for half an hour during surface scintillation scanners. The activity was monitored with entries converted to an alert recorder. Twenty-four patients were ran, of which 18 had carcinoma of the cervix, 15 had normal renal function as confirmed by both the isotope ort and the mntzaserou.

pyetogran Eight patients had SMaceral fuvetin in both tests. In the patients, the results were at variance; one was normal by the ergonogram. That is shown by the usage, and the others were the reverse. There are four cases in which the renograms provide more information about the nature of the condition stating: two cases of irreparable kidney damage while the other showed reversible damage to the contralateral kidney. Both cases showed hydronephrosis by the other. The other cases of the renogram show an absence of excretion and renal function whereas the pyelogram showed rapid retraction. Between the 18 renograms and pyelogram, the nature of the eight renograms failed to correlate with the hemodynamic pyelogram and vice versa. The renal urinary findings can be of three types: 1. Have come consistently, unilaterally, or both. Comparison is chronic in the renogram. I (3 interventional pyelograms lead one to believe that the renal anatomy of waives is present both in the patient of the theater of renal parenchyma. For the toxicity of vascular compromise, one fits into the group of staging TAT. The renogram appears to show significant disturbances with all excretion and muttering for secretion. For the sick, the rancor seems to be more suitable; there are more procedures for abnormalities of the renal apparatus because it can be done more easily. The renal value of the renogram is an instrument for evaluating cancer of the uterine cervix. The purpose of this means is to analyze the prior renogram to evaluate the state of patients of the urinary system. Situations in patients with chronic disease. The main problem is to ---Page Break--- we S. RLeARNY AND ALL AoOWOCEE plastic in the subject of Ports Kio, passed at 40 years of age. Due to the large number of patients, the diagnosis is often delayed; the problem of ureteral compression by the tumor assumes a characteristic. It is important for the surgeon to convert the opened area of the veins.

utinarian Bl 'rélogo, por otra parte, precisa conocer la diferencia entre un riñón que todavía funciona y un riñón bloqueado que está estropeado, para decidir el momento oportuno de una intervención quirúrgica. El renograma establece la diferencia entre un riñón que no funciona y un

riñón bloqueado, y evalúa no siempre posible con un programa excretor. "Para este estudio se piv pacientes con cáncer pélvico avanzado, de preferencia tener de la cerviz en 1 estadio T1, del Hospital Oncología 1 -Gonzalez Martínez se inyectó en forma intravenosa Hiputove "I (acción hipnótica marcada con yodo-t31) en una dosis de 1 ml por 3 kilogramos de peso de la paciente. Se observaron los niveles de la radiactividad sobre existencias reales durante media hora, evaluando cantidades de centelleo de superficie. Se dio la actividad con intermetidos conectados con reguladores de grupo de banda. Se estudió a 24 pacientes, 18 de ellos con carcinoma de la cerviz y ejercicios de orina nocturna según fue determinado "intervención. Ocho enfermeras tuvieron, el atubaje pruebas, funciones anormales. En dos pacientes se encontraron diferencias, una prueba auto normal con el renograma y anormal en el ultrasonido, y la otra se resultó opuestos. Hubo cuatro factores con que el renograma brindó mayor información acerca de la condición de los riñones: en dos estaban índices de reversibilidad en un riñón con datos reversibles en el contralateral y en ambos casos, el examen con rayos X presenta evidencias de hidronefrosis. Al observar el renograma indica ausencia de ejercicio y función renal, mientras que el pielograma muestra ausencia de la funcionalidad, hay completa correlación entre los 15 renogramas y pielogramas, pero uno el examen achoca renograma no presenta correlación con el pielograma intervenido y viceversa. En esto concluyó los índices del astemia urinosa pueden ser de tres tipos: excretorias, secretorias, o ambas. La comparación de las informaciones dadas por el renograma y el pielograma intravenoso nos lleva a la esencia de que el renograma puede ser de valor para juzgar tanto la calidad.

de patente de Tou urétees como la iatrogenesis funcional del parénquima renal. La frecuencia de compresión ureteral en este grupo de pacientes con ca cervix del útero, en el estadio T1L te de dos quinton. En consecuencia, el renograma parece ser tan efectivo como el pielograma intravencional para revelar alteraciones de la excreción renal y superior aún para la secreción renal. Para el enfermo de elegir esta prueba parece ser más adecuada como examen previo de ancianidades del aparato renal puesto que puede ser realizada con mayor facilidad. Valor de renograma en determinación de ceste de hacer uterine cervical. El objetivo vinculado no [prevencetudo €analse rovalce do renograma wotipicn para evaluar & desobstrucción de las vías urinarias en el túnel renal en enfermos acometidos de cáncer cervical. Este tipo de cáncer contiene el principal problema neoplásico. En Perú, entre mujeres saniores de 40 años. En caso de ser tardío, ingresa la dolencia, extenso número de casos, problema da comorremio wretdicn, ejercida pelo tumor. Aun que carácter ético, & de sande importincin que fo couhega 0 ertada da desobstrucción de las vías urinarias. El urólogo presenta diferencias entre un obstruido, pero aún funcionando, y el que está obstruido a un punto de no funcionar más, de modo que se puede determinar más exactamente a la intersección de la compresión. Un renograma indica la diferencia entre un riñón que comenzó a funcionar, y otro apenas obstruido, y que nem siempre es positivo conseguir por medio del renograma de excreción. En casos, presentado que ante estas, de cáncer palvico avanzado, preferiblemente cáncer cervical en fase AT, fueron seleccionados en el Hospital Oncológico 1. Gonallet Martiner Fiseramae inyectados endovenosas de Tlipputope <sup>TMT</sup> (del hipirico mareado con ido-I31) en la dosis de 1 pe por 5 kilogramos de peso de la enferma. Los niveles de radiactividad fueron observados en cada una de las áreas en milímetros superficiales, midiéndose la radiactividad por medio de aparatos ligados a reportadores autonomíticos de fits. Veinte y cuatro pacientes fueron examinadas, de las cuales

18 apre- tentavam carcinoma cervical ox fase T1T; 15 apresentavam Fangio repal ç exceção de urina norma, determinados tanto através do exame wotipico como do pielogramas endovenoso. Oito enfermas revelaram, em arabes '4 provas, função anormal. Em das outras, 8 exigiram

variações, tendo o renograma normal, porém anormal ---Page Break--- S tper. Bere toe adveat of the renogramas th IENORANC IS CANCRR OF 1 coemx Tent 168 'rogram, en 1 ex, dano-teo reverso coin & outra paciente 'mee toni iors ackren sla condighs doe rine: cm doin indict snnow irrevevia em tm rim, com 'how reverlveie no ovtza rns, evidenciando a raioe-X a existência de hieonetrose em ambrw ow eaeon. Ems ths dove easoa, » eenografia totale existe wusinca He eereun de fungdo renal, a paseo que o pielograma dtva ausineia de fungdo renal. Verificou-se completa correlação entre 13 renogramas & pielogramas, porém de dada vito renogramas unt denxea de correlacionar-se 'out 0 respectivo pielogram endovenoso, e vice-versa. "esice do sistema urinário podem ser de (és tips nos sngutes eas exeregio, sree, 1 ambon A eom sragin dan ilormagics rnorsise pelo renngraina com ae dla pielhranie enovenosn leva A ere que © Ten fia & de valor tants para apterin sc a Uravbetrutin de ureters, cum a integridade funcional do parkagui- renal frequência de compressão urtérien, me whup. eurespanien w 40% entre pacientes com carcinoma 'rina vervient na fase TH. 1 renogratsa ci noni, a aligiva ta eftivo «ant 0 pielograma endovenoso cra revelarpeetarbagies da vxergao femal @ € superior jartsverogia renal. Relativamente & eapeeronn. éte 'toe por ver muir fil, ve alguns tae comveoniente day ioeeoe le bina te nomatine d0 aparelbo. Houve quatro casos em que 0 renograma. Em 1954, Taplin, Morosith aul Rade © develop fe itotoye meserans Winter" im the tame sear 5h) tesbuend MC elmiral practice Tn PST 1058, Winter "south the value of the tet 'soning provehure i renal heyettensn, Doc bere \* on 1959 found great core lation betwen the ram aod her cligieal atl radlopen! Bode Patient wil ntructin of he Upper

Urinary tract and renal function have been correlated between abdominopelvic radiography in a study of 2 patients by Zinn Winkel in 1961, focusing on urinary tract and renal function reported a correlation between the renogram and the radiographic findings in 108 patients. The purpose of this study was to describe our experience with the intraparenchymal in investigating the nature of the urinary outflow of patients with cancer of the urinary tract. This form of cancer is the most prevalent form of malignancy in women since 1984 in Puerto Rico. A large proportion of patients unfortunately come in for diagnosis later than for two-stage moderately or severely advanced cases. At this stage, the primary concern of neutral compression by the tumor and its interference with the kidney becomes critical for management. Both the surgeon and the status of the kidney of the urinary tract are important. The urologist must differentiate between a hocky with renal function and a blocked kidney without function. It is essential to decide when to attempt decompression, especially in many instances with the use of the usual lines of procedures for evaluating renal function. Now, with the use of Femara, we are able to differentiate a non-functioning kidney from a blocked but functioning one.

Materials and methods: This study was conducted on 24 patients with documented pelvic malignancy undergoing radiotherapy at the TF Goncalves Martinez Oncologic Hospital. Diagnosis was established by imaging. The stage extension of the disease was determined according to accepted international criteria for classifying carcinoma of the cervix. Additional information was obtained through laboratory examinations, blood chemistry, renal function tests, and imaging studies. The radiographic images were obtained from the Clinical Applications Division of the Puerto Rico Cancer Center using labeled orthophthalic acid in a calibrated form for injection. Feats Squires Relioparmarewtiel Division. The technique is the same as described by Winter et al. The patient is positioned on the table with ease spar. The lain facing the

bite! part of the ee is rk reantning free for adequate placement of the Aetertars. The tnteeoes are made up of 17 XT thalliom-activated shades. The scintillation spectra formulated by a lead label,

with an opening aperture of size 1 inch (HA) and depth varying from 1 to 2 inches (174) subblending as fogs at 20°. The instrumentation system consists of scintillation detectors, a survey multichannel chart recorder for simultaneous recording of activity over dark renal areas. Hippuric acid is injected, and the amount of radioactivity in terms of body weight per dose of radioactivity injected usually ranges from 10 to 20  $\mu\text{Ci}$  per person per test, which has been considered to give the patient less than 1% of the radioactivity faced by a single X-ray exposure. Renograms are interpreted according to the criteria of G. Y. Tain et al. When hippuric acid is injected, there is a rapid initial peak of activity that occurs in a few seconds and represents the vascularity of the kidneys (Fig. 1, segment A), followed by a second less steep rise of the curve during the next 30 minutes. This is the interval of active tubular extraction of the labeled substance from the blood (see treatment B or excretory phase). The last portion of the curve begins with the peak reached at B, and this is a plateau near background 15-20 minutes later. This latter portion, called segment C, represents the excretory function, which is delayed when there is difficulty with the urinary outflow. Twenty-four patients were examined, of which 18 had carcinoma of the cervix, age 11. Fifteen had normal renal function and excretion of urine as reflected by the renogram, the intravenous pyelogram, and other clinical tests. All the abnormalities by the determination of patients by stages—CERVIX UTERI. Neither the renogram nor the pyelogram were found in the range III group. In seven instances, both tests, the renogram and the pyelogram, were abnormal; there was one false negative and one false positive renogram when the renogram was evaluated in terms of the...

excretory urogram. The PSP (Table ITT) was done on 16 patients; 11 were normal and 5 abnormal; two of these were found abnormal by the X-ray of isotope examination, two had diastolic hypertension, and no explanation was found for the eighth case. In the group of 11 normal PSP, there were 3 abnormal cases detected by the renogram and the intravenous pyelogram. Lack of visualization of the dye contrast media occurred in 6 instances. This was associated with non-functioning kidneys. The renograms showed a pattern. The CORRELATION OF RENOGAM WITH THE INTRAVENOUS PYELOGRAM BY STAGES. Normal terms. Summary—overall Score. Total 2 ---Page Break--- Some—abnormal. Some cases. Total of absent Kidney in these four cases. Hydronephrosis occurred in 4 instances. This was accompanied by unilateral lack of kidney function in two, and bilateral loss of function in the other two. Discussion. The value of the isotope renogram to detect impairment of the excretory function in diseases affecting the upper urinary tract has been well established from the work of Taplin et al., Winter et al., and Donneberg. The problem of ureteral compression by carcinoma of the cervix is well known, with cervical carcinoma found in 68% (00/198) of the cases. A correlation of 85% was found between the renogram and the IVP. In this group of patients, the renogram and the IVP showed a high degree of correlation: 15/18 normal, 7/7 abnormal, one false negative, and one false positive. A false positive in most instances is probably due to proportional factors; this can be checked in 7 out of 11 authors (ib). This may be related to the size of our sample. Correlation between the PSP, renogram, and IVP was not good. The lesion of the urinary tract in cases of cervical cancer is primarily an obstructive phenomenon. Renogram. No mention of Obstruction etc. ---Page Break--- 163 S. mitaney and A. moomoUEE 8 Aol cenogram, Bian ert, Total renal fusion phenomenon, but sooner or later the excretory function of the renal parenchyma may be impaired, and likewise the vascular flow will also be affected. The renogram.

ism tert tt can be easily performed, can be done rapidly, is nontraumatic, can be done in all patients, and has shown a high degree of correlation with other clinical tests. All since it may even provide information not obtainable by other means. In two of this group of the four patients with hydronephrosis, the renogram added valuable information by showing unilateral and irreversible

loss of kidney function with blocked but preserved contralateral kidneys (Fig. 2). This information cannot be obtained from the IVP alone. In another two cases (Fig. 3), the IVP showed no visualization, while the renogram showed this was due to lack of kidney function, a conclusion that cannot be reached on the basis of the IVP alone.

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41. Twenty-four patients with cancer of the cervix were studied with the hippuric acid renogram, intravenous pyelography, and other imaging tests.
  2. Eighteen patients had carcinoma of the cervix uteri stage I; all abnormalities detected by the renogram and IVP belong to this group of patients.
  3. Approximately two-fifths of the patients (7/10) had signs of ureteral compression as shown by the renogram or IVP.
  4. Comparison between the renogram and the IVP is useful for detecting abnormalities of urinary excretion and renal function in patients with cancer of the cervix, particularly stage III, is discussed.
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- ### CANCER OF THE CERVIX
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  - (11) WINKLE ZUM, K. See reference 8.
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rat ok, Exhibit 414 AMA Meeting. Miami Fla, 1960), et al. i. vel al See references 3.4.3. (16) DONNEBERG, T. See reference 6, (IN ROCKLER, H., and WINKLE ZUM. K. See reference & i ARCIAL ROJAS, RAUL, A.. et al. The Am. J of Path, 91, 1077-1082 (1958), (19) WINKLE ZUM, H. et al. See reference 8 (20) WINKLE ZUM, K. et al. See reference 5. (21) BOCKLER, I. et al. See reference 17 ---Page Break--- eprint from the Amara Journal of the Medical Sciences, Vol 24, No. 1, 1984 THE ROLE OF CALCIUM ON THE INTESTINAL ABSORPTION OF VITAMIN B12 IN TROPICAL SPRUE. By A. L. Reowcvrz Rosano, M.D. 17. Surany, Mayor, MG, USA From the Department of Medicine. San Juan City to the Case Aggregations Bece. Sulie Cte in the training Month Topes Pesan Laan, Senn Pero ie) Geasbeck and Nyberg observed that in women Aetna the urinary retention decline in the leetama Ba, calcium in the Schling Yona tmp co, Md on Tates ney devrense ie armada, tals mie ae Inde Sam hk St Sr sn Sk get clyinvdianine ete acelate sis ee, epee me (EDTA). "This effect was avoided Steg Sa mets of the Stow 'hen car ace was given only a Cebea comet, Fah sale, with the EDTA soni inbdcd vitamin levels" mese A wot Se oS Bans Im, 2 series of experiment, no Cvlabl yay se an Ba Jn, tert ot Speman, oe! Te hating tne of snk fruce the ability of hog itrinic Se ne soled fr Btu iti factor concentrate to improve the up. So'etur'ms phen ery uh tt tke of iain Bia by ered ace of Sie i Be, mat, 3 Fat smal Inesoe sol by iver sees yowdrel BE zoel Intentog and by Ive sees Pia Sie ane ae mao Caled by" Cooper and. Gui Cen Oe cere Ret. Theres of the intestinal 'Siuralat) it was reported that calcium absorption tests are listed in Table 1.

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of the adulterated love In the present span bee Sean, tay whey, ar a oe ean pit, age 1 16 9, with one! minbtered, the Hehour ordinary excre- Sane Spe nnhel Ties pes re 4 are teeth Tce te pao ne a Oa tl ames "iin ns oad tettons value of 2. of the orl dose. With SZ eek es fos Te Sescae Scum ncn it sanged fom © 10 Siar Sagan pel ons: with ea wae of 21 Sarid cnretrn, "itoriee Discussion, The exact physiologic SPSEGM IER TR cuMe Sie mechanism of the intestinal abortion (aio) ---Page Break--- dere nets vn Sgn sean ean yg © gs mem ga aE BoE Me am = nT rRanesees Resceear 4 caging wae eniea ela «wmv deecececeeeberoeee Gennanteae Renan Breeaesesseasssae ceo) ---Page Break--- 70;660 The American Journal of the Medical Sciences \* November, 1061 of vitamin Bho is sill wiknown, Re- These differences were not significant only evidence, as bee reported and probably represent fluctuations in. nich imple calcium plays a ole co herent un the test tell. Analysis of {he absorption cf vitamin' Bry Glos, Grusbeck's cases of nontropieal sprue Boyd and" Stephamsore observed that shows only one person had a sigoiicant the percentage of vitamin By sbuory- rise in the uritary excretion of the Sede i nam oa nna fr Qh ml, In "stunin was increased. He pox. Inad. In this stance, the vrnary folated that titonain By ie absorbed cretion rose from a very low value of {in the distal eum via an intramural 1% t0 208 with calcio eer mgr th aera Maken ai by lechanism, Herbert suggested tht the ents with tropa) speue most likely tors bound the vigenin Byeintrin- reels from damage to the receptor 5 Ferro th rat nine cron wie rime find the presence of calium sons is cob, a8 past of the opto ed he og the copier, caang's tnd in tis Gaeae (Batter 'Galen, io dsfecive fat cigestion words and. Perez Santiago'). More- cx sberlin, forms smile sone he Bnding of pot amin 'ith fatty actds aod is lost the stole matic for many years hot with perss- TKovelts end Janowite!). The amount tently abpormat vitamin Brg absorp- Lhe on ial forthe tinal on, epg the Carag he re

Absorption is therefore reduced. The tor may be permanent and once is of the fat-soluble irreparable in many patients. This chain further accentuates the need and would explain the persistence of in the deficiency of vitamin absorption. For paired vitamin B12 absorption and the corresponding definite causation, falls of calcium or its intrinsic factor arrangements of calcium metabolism improve absorption. Celiac sprue is practically known. Summary and Conclusions. The intestinal absorption of vitamin B12 is impaired in tropical sprue. Vitamin B12 appears to be indispensable for the absorption of intrinsic factor and calcium. Minor diseases and neither intrinsic factor nor differences were observed in the two calcium lactate improved absorption of Schilling tests done on each patient, the labeled vitamin could be seen.

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Baeeweth Gy Ja sod PeenSentogn, Es Aam, It Mi 4 6 1858 Basser Saad Can We Br). Cm vey 0, 18, 1008, Sa Grae oye ee Bn, ie SE nk ed Cashed, Kanter, Lo a Stl, Ms Lancet. 1, 994, 1950 Rese Nyberg War "Scandiny, J Clin Lab eves, 10 48,1958, AT Gi eset, 9, 640, 1968 mad. 3, 1k, 1658 'a Jones RD). Mt Stal Mean. 24,181, 1957 Shel Tend lates ie Jon Js" Caen ly, 48, 7%, 196 r 2 & " & & © = & ---Page Break--- DEMOSTRACION EXPERIMENTAL DE LA EXCRECION DE SEROALBUMINA EN LAS GASTRITIS Por: Dr. A. Rodriguez Olleros, F.A.C.P., FeA.C.O\* De, 8, Teizarry\*\* Mise MH. Riverat@ Los estudios, ya clásicos de los autores alemanes, habían señalado la presencia de albufina en cantidades anormales en el jugo gástrico de ciertas gastritis. Katsch (1)

estudia y demuestra contenido anormal de albúmina en el jugo gástrico de las gastritis de las infecciones y las gastritis "serosas". Este autor y Balkler (2) han desarrollado un método a base de la turbidez que produce el sulfato de amonio.

En los líquidos, el biólogo Citein (3) describe el síndrome de "hipoproteinemia hipercatabólica" con la secuencia de la abundante secreción de seroalbúmina en los casos de gastritis hipertrófica gigante. Butz (4) lo confirma. Norpoth, Sursan y Glecsges (5) usando la electroforesis sobre papel, detectan en el jugo gástrico albúmina de origen "inflamatorio". Heinkel, Preisser y Henning (6) comprueban que los pacientes con gastritis atrófica tienen una baja de la cifra de albúmina sérica. El valor estadístico. Glass e Ishinort (7) con la misma técnica de la electroforesis sobre papel demuestran que los jugos gástricos de pacientes de gastritis vértical y gastritis "hiperplásica" contienen los productos de degradación de la seroalbúmina. Material y Métodos: se usaron perros beagle de peso aproximado de 30 libras. Los dos días previos al experimento se les administró 1/2 cc de Lugol dos veces al día. Tres perros se usaron para los estudios de control. A cada uno se les inyectó intravenosamente en ayunas, Albúmina I-131 "RISA" en cantidad de 26  $\mu$ c diluida con albúmina a razón de 2.6  $\mu$ c x cc. Se obtuvo la sangre para conteo a los diez minutos, estableciendo la distribución de actividad inicial. Se volvió a obtener sangre para conteo todos los días sucesivos durante 8-10 días, siempre en ayunas. El día cuarto después de la inyección de fsa se hace la prueba de "obtención del contenido gástrico". Se inyecta a cada perro en ayunas 1/2 cc de Histalog (25 miligramos). A los 25 minutos se anestesia con Neabotal e inyección intravenosa. Se incuba el estómago mientras el perro está decúbito lateral y se extrae todo el contenido gástrico que se descarta. Profesor Asociado de la Escuela de Farmacia y Escuela de Medicina, Universidad de Puerto Rico. Director, División de Aplicaciones Clínicas, Universidad de Puerto Rico. Técnico de Investigaciones, División de Aplicaciones Clínicas, Centro Nuclear de Puerto Rico, Universidad de Puerto Rico. Gentry Nuclear de Puerto ---Page Break--- Página 12, Demostración.

experimental, etc. Desde entonces, durante 30 minutos existe, se recoge con aspiración continua 12 secreciones gástricas que se mide y se envía al contenedor. Se ha repetido la misma técnica en los siguientes tres grupos: 1) Dos perros a los que durante 64 días (9 semanas) se les administró por sonda 2 cc de Croseca y 2 cc de "Diol" directamente, excepto los domingos. "Los perros desarrollaron la gastritis serosa: congestión, alteración capilar, edema y muy poco componente celular." Terminado ese periodo se les inyectaba 26 cc de "AISA" y se procedió como se ha indicado en los controles. 2) 42 perros se les administró por sonda gástrica dos gramos de cincophen (atofén) suspendidos en agua, dos veces a la semana. "Con este método se produce una gastritis ulcerativa del cuerpo y del antro del estómago. Hay múltiples erosiones superficiales de la sabordía de un milímetro de diámetro. La técnica propia es endoscópica y sobradamente infiltrada con neutrófilos." (figuras 1 y 2). El lunes de la semana siguiente se inyectó en ellos la prueba con "AISA" fenoadiática, fue que en los anteriores. 3) Tres perros a los que a través de un catéter ureteral incluido y fijado en una sonda gástrica, se les instiló en la parte alta del estómago, dos veces por semana, durante cinco semanas 3 cc de la solución en alcohol, 1 cc de aceite de croton al 0.57. Se procedió con ellos tratando de 26 cc "AISA" en igual forma que la descrita. Estos perros desarrollaron gastritis papilomatosa. (Figuras 3, 4, 5, 6, 2). Todos los animales de los tres grupos fueron sacrificados una vez terminado el experimento para el examen histopatológico del estómago. Resultados: Tres animales del grupo control y 7 animales del grupo experimental formaron la población estudiada. Se determinó el tiempo de semi-desaparición de la albúmina I-131 y el nivel de I-131 en el jugo gástrico antes y después de realizada la gastritis experimental. Como control de esta prueba se hizo un estudio de fijación de yodo a la albúmina marcada y se

determinó que en 10 días la prosenecia.

de 1-131 inorgánicos con resultado de liberación del yodo de la proteína era despreciable = gráfico 1. Las curvas de desplazamiento sanguíneo de la albúmina 1-131 se determinaron tomando valores de radioactividad total y radioactividad de la fracción proteica, encontrándose que el valor del yodo 1-131 libre en plasma con relación a la radioactividad total el día que se tomó la muestra gástrica fue 4.9% (Tabla 1 y gráfico 11). Se asume que en el estado de equilibrio cuando se muestrea el jugo gástrico (1) esta gastritis será descrita en trabajo separado de los Drs. Rodríguez Olleres y L. Galindo. ---Page Break--- Drs. A. Rodríguez Olleres, Sergio Irizarry Figura 91 - Gastritis de Acatos en perro. pétaçsesén Blandular, edema de la lámina propia, ---Page Break--- Dr. A. Rodríguez Olleres, Sergio Irizarry Figura #2 = Gastritis de atrofia en perro; lesión superficial ---Page Break--- Figura #3 - Perro Normal - 6 © papilomatosis Dr. Rodríguez Olleres, Sergio Irizarry ---Page Break--- Figura # 4 - Ferros 8 instilaciones. Se ha perdido el paralelismo de las glándulas, comenzando a dilatarse las glándulas superficiales. Gastritis papilomatosis con aceite de croten, Dr. A. Rodríguez Olleres, Sergio Irizarry ---Page Break--- Figura 05 - 8 instilaciones; que infiltran células redondas y el coagulante. Gastritis papilomatosis con aceite de Dr. A. Rodríguez Olleres, Sergio Irizarry ---Page Break--- sagaosa ap 92799" 909 weormorTéed = op wants Aaxexyay 08205 \* ---Page Break--- ---Page Break--- FRACCIÓN (X) 1-131 LIBRE EN SANGRE AL TIEMPO DE MUESTREO DEL JUGO GÁSTRICO + jemea | oer |e T | peewee eT | oT oats #9 [ sna Te ---Page Break--- i g ' - y SSSA greeo-ptas ---Page Break--- Página 03, Demostración experimental, etc. La albúmina circulante está acompañada al pasar por un defecto en la pared gástrica al ínter del estómago, de las fracciones de yodo libre y yodo proteico correspondientes a las que existen en la circulación. El análisis del jugo gástrico no se hizo instantáneamente por lo que los valores del precipitado del

jugo gástrico no son válidos para expresar el verdadero valor de radiactividad proteica al momento de la transducción. Por eso, el valor del nivel de I-131 fijo en proteínas transducidas se puede obtener aplicando una corrección que se obtiene tomando como factor de corrección el I de radiactividad proteica presente en la albúmina circulante (abla I). La posibilidad es considerar la radiactividad total del jugo gástrico como indicadora de la actividad proteica, ya que ambos fluctúan en la misma dirección. Los valores de I-131 en el jugo gástrico se expresan con radiactividad total o como radiactividad corregida. Los resultados de 3 grupos de animales en los cuales se practicaron 3 tipos de gastritis aparecen. La siguiente tabla indica los animales 1, 2, 3 tratados con Diol-creosote, el 4 y 5 con atofin y el 6 y 7 con aceite Centon. Tabla IE anival ¥ —TA/2 fas alb.T-131 1, dos 1-131 jugo gástrico 1/2 br. Control = Experimental control Experiencia Act Tot. -Corren ot Curren. 1 (Canela) 9.0 6.2 0.16 0.16 2.29 2 (Blanco) 8.2 5.6 0.69 0.66 3 (Presentados) 6.0 4.2 0.57 0.433 0.60 0.58 4 (Barquitlay) 6.0 - 1.03 - 5 (inte) - 6.2 - 3 - 6 (aceite) - 6.6 - 4 - 7 (abaco) - - 1 - PROMEDIO 1 3.5 0.47 - 1.66 - ---Page Break--- Página "4, Descripción experimental, etc. La cantidad de jugo segregado antes y después de la gastritis. Tipo Gastritis tratada Diol Creosote Aleta 4 crótica 6 - PROMEDIO 66 al 116 en GqeTTOd fue 0.47% dosis administrada y en los animales excretantes (RE 1,962, 51 promedio del volumen segregado en 1/2 hora. El control fue de 66 al y el volumen segregado por los animales en el Deatzles £06 116 ol- Los valores antes y después del experimento serie senales gates en gástrico 111 - curvas efpleas 11/2 albúmina y BrSfico IVT 1/2 albúmina 131 y actividad del Jugo gástrico. Gordon (9) en 1959 usó en este propósito al relienten FrlorridonMe (P.V.P.) señalado I-131 que si se elimina por si mismo, la radiación se fija en parte en el retículo.

endetelins porque Jegigetsualdad de sus eniéculas que evan cl I-131 hace que se'ehieteen

a, {iferente velocidad tas de diferentes tanatos, y Einalecnte, sicenan Saiructura diferente @ la seroalbéaina sv conportanients frente a ie sucosa gastro-intestinal probablemente no sean identinces 12 electroforesis acbre el papel ha stan el aéto de utilicedo par Norpoth (5) y Henning (10), Glass (7) y Gulberg (11). ---Page Break--- 0409 oa amuse Goes tein TLENPO-DIAS wu oF 2a yan cone UE, ---Page Break--- MAL 1 Dtol-Creosora onarico Iv Ore casznants protncnsosona, y pest acetm exer 71/2 Aibentna T+131 'TRASUDACION ALBUMINA T-131 uGo caszalco aceite de Croton Atofan aras ras. oy Ba ---Page Break--- Pagina 5, Denostracién experimental, etc. Bete nétode ha sido croplenantado con la técnica de inmnoelectroforesis por Oystese (12) y Murlisan (13). Estes autores han proporcio~ nado excclentes dates sobre las vias de exerecién y sobre lac diferentes fracciones de las proteínas sangufneas climinadas, Hurliman he denostrady que el estémago normal elimina my pequefia cantidad de seroalbinina y Blobulina. Solo en las gastritis andeidas y en los casos de anemia per= Bickosa 1a presencia de estao sudstarcias puede cdenciarse trmande el Jugo directasente, in los ostcnagos con normalidad clorhidre~ pépsica Recesario nevtvalizar con una erlueién buffer el Juge gaserice segin se va segregand». En el cincer gastrico y en laa gastritis, la cantidad de ins misma proteínas que se segregan en el estónago norsal, aumentan considerablerente. fur ese en la "hipeproteinenia hipercatabélica" que fe produce por Getar pérdidus el trazady electrfrético thene pvr earacter{stica el aumenta proporeivnal que experiments 1a onda de las slobulinas. Pero el nétodo de 1a electroforesis es fundanamentalmente cualitativo. Beta era la Linitaeién para aplicarlo a nuestro preyocte. En eatos Gltions aos se ha aplicade al estudio de las pérdidas de proteínas a través de 1a mucosa gastrointestinal la combinaciøn de "RISA" intravenosa y la resine Amberlite CL. por via

oral (5 granos 4 veces al día). Esta resina fija el I-131 y lo elimina en la excreta donde se dosifica. Han trabajado en este método Seejeedhoy (14), Jones (15), Sum (16), Jiménez Díaz (17) y Lizoro (18). Con este método se recoge aproximadamente el 70% del I-131 que se elimina. Por normal se elimina parte por la saliva y bilis y el resto por la mucosa gastrointestinal. La fase para aplicar este método a nuestra investigación muestra lo poco selectivo que es cuando se quiere determinar exclusivamente la clisnactina gástrica. Hemos practicado la recogida directa del jugo gástrico segregado durante un período de tiempo igual para los animales de control como para los del experimento. Los autores antes citados (7) (10) (13) (14) han comprobado que el jugo gástrico actúa y disuelve en pocos minutos la albúmina segregada en la cavidad gástrica. El jugo gástrico de nuestros perros controles como de experimento tenía un pH 1-2. Por esto desistimos de precipitar la albúmina. El I-131 de la albúmina segregada y luego hidrolizada estaba en forma de polipéptidos I-131, tirosina I-131 y I-131 libre, ibid 7, 10, 13, 14. El porcentaje de este I-131 en nuestros tres grupos de gastritis demuestra un aumento sustancial en relación con los animales control. Las curvas de "turnover" del I-131 muestran evidentemente un paralelismo sostenido entre la curva del I-131 total y la obtenida en la precipitación de las proteínas del jugo. Por esto puede afirmarse que el aumento del I-131 del jugo gástrico procede de la albúmina excretada por la mucosa. Simultáneamente, el turnover del I-131 del jugo de nuestros perros gástricos está francamente acelerado en comparación con los controles. ---Page Break--- Página #6, Demostración experimental, etc. La concordancia de estos datos, jugo gástrico y suero, nos lleva a la conclusión de que en nuestras gastritis experimentales se ha aumentado la excreción de albúmina por el estómago. Habiéndose comprobado por los autores citados la pérdida de albúmina en las gastritis humanas.

hiperplásicas, gigantes, atróficas e incluso en las agudizaciones de las gastritis superficiales, la desestructuración por nosotros de pérdidas anormales de albúmina en ciertas gastritis provocadas en los perros tiene valor para proyectarlas en la etiología. Los perros son probablemente los

animales de experimentación más resistentes a la agresión. Es muy probable que en los humanos con gastritis exógenas, que como cualquier humano que vive la medicina presente ingiera con relativa frecuencia medicamentos que contienen aspirina y antirreumáticos en general, balsámicos expectorantes, y minerales de Fe y Ca, sufran agudizaciones de su gastritis con mayores pérdidas de albúmina a través de su mucosa gástrica. Este hipercatabolismo unido a las inadecuadas dietas en que se refieren estos pacientes para disminuir las molestias digestivas, son factores principales de la mala nutrición de gran parte de los gástricos crónicos. RESUMEN Se han inducido en 3 grupos de perros tres grupos de 1) "Serosa" en exocitos-Diol 2) "Erosiva" en atrofia 3) "Focal" en aceite de ergotina. En todos ellos se ha realizado con albúmina I-131 midiendo el paso por la mucosa gástrica. La prueba de tinción intravenosa mostró la eliminación. Los resultados se han comparado con perros normales resultando que los perros gástricos tienen un turnover rápido y aumentan significativamente la excreción de albúmina I-131 por la mucosa gástrica, que se podría explicar a base del aumento en el volumen de jugo gástrico segregado. ---Page Break--- Página 7, Demostración experimental, etc. 1) Katsch, G.5 Etvatsagehale des Hagensaftes; Handbuch der Inneren Medizin; mt: 516, 1953. 2) Katsch, G. y Bäuerle, F.; Einfaches Verfahren zur Erkennung der gastritis serosa; Klin. Woch. 16: 354-561, 1936. 3) Clerin, Y.; Sterling, K. y Halsted, S.: The mechanism of hypoproteinemia associated with giant hypertrophy of gastric mucosa: New England J. Med. 257; 906-912, 1957. 4) Bute, J.; 1960, Giant Hypertrophic Gastritis:

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Clim, Lepatole LXXXVET: 362-367, 1962, ---Page Break--- UPTAKE MEASUREMENTS: DETERMINATION OF THE PROBABLE MAXIMUM DEVIATION OF THE UPTAKE MEASUREMENT AT THIS LABORATORY De. Sergio Irizarry, Clinical Applications Division, PANC Mrs. Hada Livia B. de Colén, Clinical Applications Division, PANC Miss Zenaida Frias, Radiotherapy and Cancer Division, PRNC In order to determine the maximum deviation in our uptake measurements, a study was conducted on eight cooperative patients who were measured

repeatedly 24 hours after the administration of an oral dose of I-131. Each measurement was performed as if it were a new procedure; that is, the patient was moved out of the examining room and brought back in again for each measurement. Phantom measurements were similarly done anew each time, and the instrument was changed from position and brought again to the measuring position for the phantom and patient each time as needed. The technique used in this laboratory is based on the method published by Marshall Brucer, (1) 1959, which uses a combination of filters to measure the phantom and patient's thyroid gland. One of these filters, filter A, is a 1/16 inch lead thickness filter, attached to the lower end of the detector; its purpose is to stop weak secondary radiations coming from the body of the patient and to allow primary gamma rays from the source (the thyroid gland and phantom) to reach the detector. The other filter, filter B, is a 3/4 inch lead block which is applied over the source in the phantom and patient (thyroid gland) to cut off all primary radiations coming from the source to obtain background counts. The measurement consists of 4 counting stops, two subtractions, and a division which are related in Marshall Brucer's (1) formula to obtain the final results as follows: % uptake by the thyroid gland = (Counts in patient - Counts in patient with filter A) / (Counts in phantom - Counts in phantom with filter A) × 100. The phantom we use is a phantocube (plastic phantom) and the source.

consists of 1-131 capsules located at 3 cms deep in the phantom. The measuring distance is approximately 28 cm from the crystal and exactly 20 cm from the lower end of the detector to the skin of the patient or the outer surface of the phantom. The scintillation unit is a 2" x 2" sodium iodide crystal housed 3 inches within the detector and the aperture of the detector is 1.25 inches in diameter. The counting efficiency of this system is of the order of 1000 counts per minute per microcurie at 20 cm from the lower end of the detector ---Page Break---

RESULTS. 72 measurements were performed in 8 patients. Each patient was measured several times and the series of measurements were individually analyzed for the mean, standard deviation and the maximum deviation from the mean. The following table shows the data obtained in the eight patients examined. Patients No. 1 2 3 Uptakes Gadoiniscered 19.03 44.42 41.55 21.58 25.33 21.79 44.24 36.96 Dose 18.55 43.65 30.61 21.80 24.70 22.38 38.08 18.46 27 32.05 21.98 26.77 22.38 58 18.48 66.28 30.55 20.92 29.35 21.46 42.98 38.56 18.43 45.62 29.88 20.57 25.32 22.06 43.29 37.49 18.82 45.12 26.91 20.61 25.08 23.26 38.66 19.06 46.02 30.98 20.26 25.72 23.27 18.26 42.80 30.61 21.81 25.38 22.89 16.27 2.86 31.47 20.31 25.36 22.26 mean 28.61 44.52 30.62 21.05 25.01 22.42 43.75 37.99 std. 0.36 1.16 0.94 0.60 0.65 0.69 0.99 0.65 Max. Dev. = 0.50 1.72 1.71 0.81 1.66 0.96 1.52 1.01 The pooled standard deviation for the group was 0.77 and the maximum deviation that occurred was 1.72 units of uptake, the pooled standard deviation may be considered as the probable standard variation that may occur in any one patient to be examined by this method. Thyroid Radioiodine Uptake measurements Standard System for Universal Intercalibration. ORINS - 19, Biology and Medicine, 1959. ---Page Break---

EFFECT OF RADIATION THERAPY ON GASTROINTESTINAL ABSORPTION (OF I-131 OLEIC ACID) IN HUMANS. Dr. Sergio Irizarry, Clinical Applications Division, PANG A. Acintron Rivera, Department of Medicine,

University Hospital Victor Marcial, Radiotherapy and Cancer Division, PRNC Mise Myrna Rivera, Clinical Applications Division, PRNC Miss Zenaida Frea, Radiotherapy and Cancer Division, PRNC Mes. Carmen C. Villedas, Clinical Applications Division, PRNC There are many factors which may induce malabsorption difficulties of the gastrointestinal tract. Direct irradiation of the intestine has been considered one of the many factors that can affect profoundly the wall of this organ and its function of absorption for a variety of foodstuffs. The alteration of gastrointestinal absorption by direct radiation of the intestine has been documented in experiments in animals (1,2,3,4,5,6,7). This

problem has not been studied in humans as extensively as in animals. There is evidence for and against radiation-induced malabsorption to radioactive labeled fat in the works published by Keeves et al (8,9) and Goodrich and Hickman respectively (10). This study was done in 20 patients of the Isaac González Martínez Oncologic Hospital with cancer of the cervix uteri undergoing radiation therapy with Cobalt 60 gamma source. This group of patients did not show evidence of malabsorption of I-131 oleic acid in the baseline study done prior to the onset of the radiation treatment. Nineteen patients with carcinoma at extra abdominal sites who were going to receive radiation therapy were studied as an external control. None of these patients demonstrated malabsorption defects when examined with I-131 oleic acid. I-131 oleic acid was administered in capsule form to the patient in the fasting state and total blood and protein-bound radioactivity per estimated circulating total blood volume was assayed three to five hours after the administration of the radioactive material. The higher percentage of the dose in the circulating blood volume three to five hours after the administration of the tagged oleic acid was taken as the absorption value. The normal baseline value for the group of patients with cancer of the cervix uteri was  $13.6 \pm 4.24$  total.

radioactivity and  $4.2 \pm 2.2\%$  protein-bound radioactivity. The control group of patients with extra-abdominal cancer showed a baseline value of 12-8 (3-4) total radioactivity and 3.8 (3 2.1) protein-bound radioactivity. The criteria used to establish malabsorption for a patient during the study period of eight weeks following the initiation of radiation treatment was a value two standard deviations below the average value for normal  $13.6 - 2 \times 6.2$  or 5.2% dose per blood volume. The protein-bound values had a high degree of correlation (90% for abnormal and 100% for normals) with total blood radioactivity values. In the group of twenty patients with cancer of the cervix uteri, fourteen patients developed profound alterations of intestinal absorption as determined by the I-131 oleic acid technique. These alterations occurred at different intervals: three occurred two weeks after the beginning of radiotherapy, eight in the fourth week, seven in the sixth week, and nine in the eighth week. ---Page Break--- An appearance of alterations in the rates of absorption that could be judged abnormal by this technique was present one or more times: it occurred twice in four patients; three times in three patients; and four times in one patient. In the external control group of patients, the alteration in the rate of absorption that could be considered abnormal occurred only once in three patients. A simultaneous Vitamin A absorption study was attempted in some of these patients in collaboration with Dr. A. A. Cintron Rivera. Serial samples were not done in enough numbers on those patients to permit statistical analysis; thirteen patients were re-examined sometime during the study period; four patients once; two patients twice; one patient three times. Abnormal vitamin A tolerance curves were observed on several occasions, four of which were in the following six weeks. No good correlation was found between I-131 oleic acid and vitamin A since five abnormal vitamin A results correlated with eleven.

abnormal oleic acid tests; and five abnormal oleic acid things correlated with nine abnormal vitamin levels. The following table cites the lack of correlation abnormalities for oleic acid and normal for vitamin A. Abnormals for vitamin A and normals for oleic acid. Abnormals for oleic acid and vitamin normals for oleic acid and vitamin. The evidence found in this study favors the conclusion of Reeves and Cox (21:12) who claim that radiation alters gastrointestinal absorption of aids labeled fat and is in variance with the evidence given by Gesdrie and Egan (13) who found no evidence of malabsorption in patients, radiated from a Cobalt 60 gamma source. Preliminary data on vitamin A absorption in a limited number of observations from some of these patients is also suggestive of impairment of gastrointestinal function by radiation. Low correlation between vitamin A and oleic acid is concerning because it is probable that both substances are not necessarily absorbed in the same way (16, 15). ---Page Break--- 1 10. a 12. 1. ue. 1s. REFERENCES Walsh, David: "Deep

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Radtation Therapy." Radiology Vol. 73: 396-401, September 1939. Reews, et al: "Fat absorption from the Human Gastrointestinal Tract in Patients Undergoing Teletherapy." The American Journal of Roentgenology, Radiation Therapy and Nuclear Therapy, vol. 69, No. 1, 122, 1963. Goodrich, J. K.: "Oleic acid I-14] Intestinal Absorption in the Pelvic Cobalt 60 Irradiation." The Am. J. of Roentgenology, Radiation Therapy and Nuclear Medicine, Vol. 67, No. 1, January 1962 See 9 above See 10 above laevis, S. Rovere: ¥ Press 1960, New York 'Amines and Hormones, Vol. 1%, p. 388, Academic Seshadri, Sastry ot A: Indian J. of Medical Res. 45, 263, 1957 ---Page Break--- TIROIDEA: CORRELACIÓN ENTRE GAMMAGRAMA E HISTOLOGÍA Por los Drs. Sergio Irizarry y Aldo Ly Lunaro Divisiones de Aplicaciones Clínicas, Centro IVE de Puerto Rico Mucho se ha publicado ya sobre las características del gammagrama de tiroides y su significado en el diagnóstico del cáncer de esa glándula. La correspondencia entre la actividad de una zona nodular y la anatomía patológica de ella ha sido objeto de numerosos estudios catadiópticos. Ya en el año 48 Feitelberg y colaboradores hacían mediciones localizadas con un tubo de Geiger Müller blindado con plomo para dejarle un pequeño ángulo de abertura, tratando de comparar el que mostraba perfil de actividad con las características anatomo-patológicas de las distintas zonas. Ellos describen ya, la causa que todavía actualmente evidenciamos como la más importante: la falta de correspondencia entre baja actividad y células indiferenciadas, que es la superposición de planos de distinta intensidad de función que puede estar funcionando normal donde existe una zona fría. De cualquier manera, ellos describieron el método como uno de utilidad para la sospecha de tejido neoplásico. Este método se vio muy simplificado con la introducción de los "scanners" que realizan automáticamente la medición por áreas. En 1952 Daher y colaboradores describen la relación entre anomalías morfológicas y la imagen del

gammagrana. A partir de sentencias se han decidido los trabajos donde cada Centro de aplicación de radioisótopos presenta su experiencia y los resultados estadísticos obtenidos: Entre ellos podemos citar los de: Perloutter, Slater y Attic del año 1954 que en 85 nódulos solitarios de 24 calientes 'ninguno a5 alineado, en cambio entre los tibios lo que es el 20% y entre los fríos el 32. Johnson y BeLervaltes en 1955 que hallaron 31 de carcinomas nódulos fríos, 10% en los tibios y ninguno en los calientes sobre un total. Greene en 1967 acepta siendo, dice, muy conservador entre los fríos el 20% de cáncer y Manandn La atención sobre la posibilidad de que el tejido funcionante cubriera la neoplasia de un nódulo tibio "caliente" para lo cual sugiere se haga inhibición en tiroidina para ver si son independencias. Groesbeck que sobre 253 casos operados da entre los eufuncionantes 3.6 de malignidad, entre los hipofuncionantes 14.2 y 0 para los hiper= Einetonane ---Page Break --- Página #2, Patología Tiroidea: etc. Meadow en 1961 que establece diferencia entre nódulos no funcionales y bipotenciales dice que entre los primeros la incidencia de cáncer es del 38.2 en 26 casos. Hasta llegar hasta las recientes publicaciones de Rose en 1963 y

dishe en 1962, entre otros, que dan una correspondencia semejante entre los no funcionales y cancerosos. Hasta con un contacto, no trae ninguna gravedad en este campo, tiene por objeto solamente presentar nuestra experiencia y los resultados obtenidos en este trabajo con la División de Aplicaciones Clínicas del Centro Siqueira de Puerto Rico. Se han repasado 543 gammagramas de tiroides que se han realizado en 'una pistión durante los años 1962, 63 y primera mitad del 64, contando el total de los pacientes los diagnósticos semiológicos persiguen agruparlos de la siguiente manera Diagnósticos Min. Casos n Nódulo caliente 267 4s Bocio difuso 1% Bb Cáncer de Tiroides 66 2 Bocio polinodular ar 945 'Tiroiditis 2 25 Restos de conducto tiregloso 9 2 Sin diagnóstico previo 88 Xe EL catudiy de los gráficos obtenidos en

Ese grupo de informes lleva a hacer la siguiente clasificación. Diagnósticos Hem. Casos 2h nódulos fríos 105 9 nódulos tibios ne 2a nódulos calientes 7 3 captación uniforme 143 26 captaciones irregulares 16 3 no clasificables Entre los de captación uniforme se comprenden nódulos difusos y nódulos que no habiendo sido caracterizados previamente no pueden diferenciarse. Sorel ganogama del ceste del tejido glandular. 1 Gløine grupo con Por ie las captaciones irregulares y en su parte pactontes que habían resonados previamente, que tenían algún problema de cuello que se reactiva desde el punto de vista tiroideo sin ser un proceso glandular severo en capacidad general hoy baja por diferentes motivos no siendo fanning' demostrativo, ofe. ---Page Break--- Página #3, Patología Tiroidea: etc. Para realizar estos estudios se dispone de dos aparatos Nuclear cnieage. Uno con un cristal de 2 x 2 pulgadas y un colimador con panel de abeja de 19 orificios con toca de 13/4", y el otro con un dispositivo para "fotoscanning" al cual en la actualidad se le esté agregando un tubo de rayos X para hacer placas de localización simultáneas, que tiene cristal de 3 x 3 pulgadas con forma de 2 3/4 pulgadas, con un gran blindaje y un colimador semejante al anterior de 19 orificios. Ambos con el analizador electrónico correspondiente. Se coloca al paciente sensible con un alachadén bajo los hneben: habiéndose dado 24 horas antes una dosis de alrededor de 50% 100 ue ri. Se proyecta la imagen de la tiroides, con sus ancraslidades, y el ioides y la horquilla esternal con puntos de referencia, sobre una hoja de polifil colocada horizontalmente sobre el cuello y esa imagen se transporta sobre el papel receptor del "scanning" para localizar. De todos esos pacientes estudiados se han seleccionado 64, que habiendo realizado tratamiento quirúrgico tienen además efectuado el examen anatomopatológico de la pieza correspondiente. Entre ellos por el gannagrans podemos citar: Nódulos fríos a nódulos tibios a nódulos calientes 4 Captación.

general baja 5 Capeación irregular 3 Por otra parte 1a anatenfa patelégica señala: Procesos malignos 23 (362) Procesos benignos 32 (502) Tiroiditis de Hashimoto 4 Diagnósticos varios 3 Entre los benignos predicados diferenciar 26 adenomas y 6 quistes hemorrágicos. La correspondencia entre estas dos agrupaciones es la siguiente: Nódulos fetales (31) + Procesos malignos 15 (97) Procesos benignos 12 (91) Procesos no tiroides 3 (identificadores de cáncer no tiroideo) Hashimoto's 1 Nódulos eibinos (21) Procesos malignos 7 (32) Procesos benignos 13 (zn) Hashimoto' = 1 ---Page Break--- Página 4, Patología Tiroidea: etc., Substratos calientes (4) + Procesos malignos 6 Procesos benignos 3 Hashimoto' = 1 Estos resultados que en realidad no son tan definidos en la diferencia que relatan otros autores a la que hemos obtenido en nuestro medio y están acordes con el concepto aceptado de que las causas más comunes de los nódulos son el carcinoma y el quiste hemorrágico. ---Page Break--- The Use of Thyroid Trapping of Iodide as an Indicator for Absorption 1-131 Labeled Fat I-131 labeled fats - triolein or free oleic acid have been useful tools of examination of gastrointestinal digestion and absorption in patients suspected of having pancreatic steatorrhea or the malabsorption syndrome. Although blood absorption curves have been used extensively, in practice they may be difficult to follow on all patients since a

substantial number of patients with good intestinal absorption may absorb rather late, and be misrepresented as malabsorbers if the blood curve is not followed long enough. For the hospitalized patients, tests may be run for over 10 hours if necessary, but repeated numerous venipunctures make the test less worthwhile. In the ambulatory patient it is not possible to obtain samples beyond the 6th hour for obvious reasons. In most laboratories, the period of peak value of the curve is taken as sufficient for valid results. This period falls within 4-6 hours after oral administration of the tracer dose. It is

estimated that the error for this determination within 4-6 hours may be as high as 20% for individuals with no malabsorption defects. Because of these difficulties and to avoid repeated blood samplings over a period of many hours, a new approach was sought by using known physiologic function (iodide trapping by the thyroid gland) as an indicator of another physiologic function (gastrointestinal absorption). Rationale and Method - I-131 labelled fats once absorbed are metabolized and I-131 set free as iodide. This I-131 labels the iodide pool from which approximately 1/3 is trapped by the thyroid gland and 2/3 excreted via the kidneys in a person with normal thyroid gland function. Regardless of the iodide trapping capacity of the thyroid gland, the fraction of I-131 set free from absorbed fats and accumulated by the gland when related to the rate of thyroid uptake of I-131 at 24 hours will give information about the total I-131 absorbed from fats which labelled the iodide pool. Thus if the pre-determined thyroid 24 hours uptake for I-131 is 50%, and a capsule of I-131 labelled fat containing 100  $\mu\text{C}$  is administered, and the amount of I-131 set free from fat and trapped by the thyroid gland is 25% of the administered dose of labelled fat, it is evident that the iodide pool must have contained 50  $\mu\text{C}$  of I-131 set free from fat, from which 25  $\mu\text{C}$  accumulated in the thyroid gland. By comparing the amount of I-131 set free from absorbed fat and entering into the iodide pool to the amount administered, the fraction absorbed can then be calculated: the I-131 in simple solids such as 100 = 1.131 fat absorbed is likely to be a ratio of fat absorbed. In this example, 50  $\mu\text{C}$  I-131 were present in the iodide pool and 100  $\mu\text{C}$  were administered, the absorption is 50%. ---Page Break--- The Use of Thyroid Trapping, etc. ~ Results: A group of 21 healthy Puerto Rico Nuclear Center employees were investigated. Thyroid gland uptake of I-131 at 24 hours was determined for all subjects. The next morning after noting residual activity

In the thyroid gland, a dose of I-131 labeled fat was administered. Blood samples were drawn 3 and 5 hours later for assay, and a thyroid uptake of the I-131 set free from fat was determined 24 hours later. The assumption was made for practical purposes that the peak of iodide trapping occurs at or about 24 hours and that the day-to-day variation is not great (in this laboratory, about 4 units of uptake). The 26-hour radioiodine uptake was  $21\% \pm 1.6$ . The 24-hour radioiodine (set free from fat) uptake was  $13.7 \pm 3.9$ . The ratio of I-131 from fat uptake to predetermined I-131 thyroid uptake is  $56.6 \pm 17.9$ . Fat absorption - blood curve - 4 doses per blood volume  $13.42 \pm 6.7$ . This ratio times 100 reflects the same magnitude as that of the above formula. Application to patients: A group of 7 patients has been examined by this technique, and results correlated with blood levels at 5 hours. Four patients out of 7 showed low blood levels at 5 hours, but all of them showed normal thyroid iodide levels from the I-131 set free from the absorbed labeled fat. The technique can dissect out the group of late absorbers from the group of early absorbers when blood samples are collected. More patients will be examined, and special application of this technique should prove helpful in malnourished children and adults with various gastrointestinal disorders of digestion and absorption here in the tropics. ---Page Break--- CANCER OF THE THYROID GLAND Review of seven patients treated with I-131. The clinical records of seven patients from the I.C.U. Oueclogte and University Hospitals were reviewed to summarize past experience in the treatment of thyroid

carcinoma with I-131 during the past three years. Prior to treatment, the patients had complete clinical evaluations to determine the presence of residual thyroid tissue in the neck and metastases in bones and soft tissues. This was followed by radioisotope studies of the neck and other tissues to localize the areas with avidity for I-131. The procedure was carried out initially in all.

patients without the benefit of the thyroid stimulating hormone which increases the capacity of thyroid carcinomas to take up I-131. When the first attempt failed to localize I-131 containing cancer deposits, the procedure was then repeated with the aid of the thyroid stimulating hormone. The therapy plan consisted of the oral administration of approximately 25 mCi of I-131 to ambulatory patients, followed by clinical and radiotoxic examinations at monthly or bimonthly intervals. Treatment was repeated as necessary until all radiotoxic evidence of active metastases disappeared. After completion of a full course of therapy, follow-up was continued every three to six months. Six of the seven patients were adults whose average age was 53 years, the oldest being 63. The seventh patient was a girl 16 years old. One patient was male and six were female. A mass in the neck was present in six patients; the disease was confined to the neck in only one patient while it was widely disseminated in the other six patients. Two of them had pathologic fractures of bone; two showed lung metastases, and two had both lung and bone metastases. Four patients received only one dose of I-131 for an average of 25 mCi. All of these four patients died within two years. Three patients who are surviving received full therapeutic doses for the specific indications for which it was administered: (1) 13 mCi I-131 given April 1961 to produce ablation of residual thyroid tissue in a patient with localized disease in the neck, whose disease had been treated and controlled by surgery. (2) 105 mCi I-131 given in five doses (July 1962 to February 1964) to a 46-year-old girl with bilateral clinical and pulmonary metastases caused remission of all neck manifestations and the pulmonary lesions are now diminishing. (3) 125 mCi I-131 in seven doses (November 1960 - November 1961) given to a 63-year-old female with multiple bone and soft tissue metastases and a pathologic fracture of the femur was followed by remission of all radioisotopically demonstrable.

metastases and healing of the fracture. A recurrence in September 1963 was treated with a dose of 25M T-ist. ---Page Break---