VIII EDIZIONE

NEN PRECEPTORSHIP

LA PRATICA CLINICA NELLE NEOPLASIE NEUROENDOCRINE

16/17 Maggio 2019 | IEO, Istituto Europeo di Oncologia - Milano

NEN Preceptorship

IEO
Istituto Europeo di Oncologia

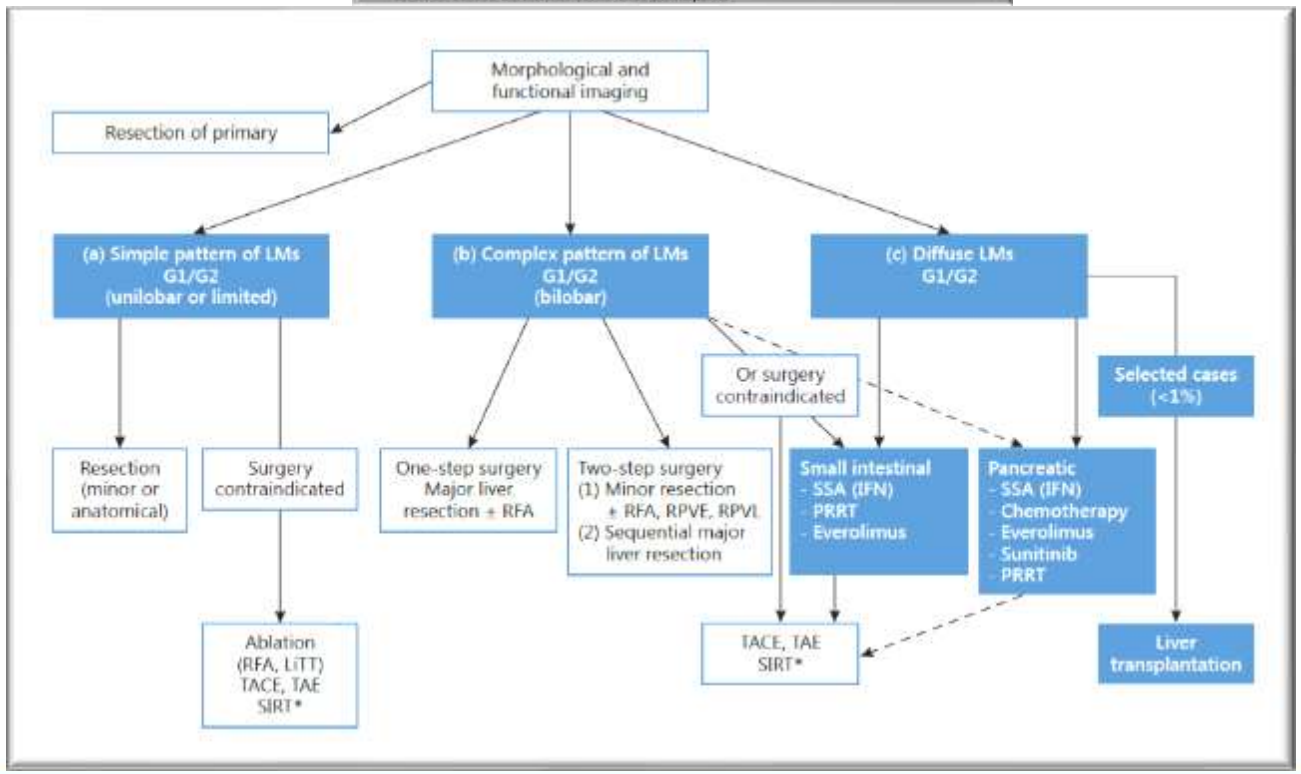
Terapie locoregionali epatiche

Guido Bonomo
Divisione di Radiologia Interventistica

Nen

ENETS Consensus Guidelines Update for the Management of Distant Metastatic Disease of Intestinal, Pancreatic, Bronchial Neuroendocrine Neoplasms (NEN) and NEN of Unknown Primary Site

M. Pavel[a] D. O'Toole[b] F. Costa[c] J. Capdevila[d] D. Gross[e] R. Kianmanesh[f]
E. Krenning[g] U. Knigge[h] R. Salazar[i] U.-F. Pape[a] K. Öberg[j]
all other Vienna Consensus Conference participants



Indicazioni

Locoregional Therapies

In the absence of any large comparative trials of different locoregional or ablative therapies (bland embolization, chemoembolization, radioembolization, radiofrequency ablation or microwave destruction) or systemic treatment, the choice of treatment is based on individual patient features (e.g. size, distribution and number of liver lesions, vascularization, proliferative index) and local physicians' expertise [14]. Locoregional therapies should be exploited early, following SSA therapy, to prevent carcinoid crisis in functionally active NET (especially midgut NET with classical carcinoid syndrome), and they may be an alternative option to systemic therapies in patients with non-functional tumors if the disease is limited to the liver. Locoregional therapies may be considered repetitively during the course of the disease. There is consensus that SIRT is still investigational, and that a comparative trial of SIRT to bland embolization is required, as well as more safety data on long-term tolerability of SIRT to establish this procedure for the management of NEN [14–18].

Neuroendocrinology 2016;103:172–185
DOI: 10.1159/000443167

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Indicazioni

- La maggior parte dei NET ha una progressione lenta e metastatica
- Sopravvivenza a 5 anni nel metastatico 40 %

0163-769X/04/$20.00/0
Printed in U.S.A.

Endocrine Reviews 25(3):458–511
Copyright © 2004 by The Endocrine Society
doi: 10.1210/er.2003-0014

The Diagnosis and Medical Management of Advanced Neuroendocrine Tumors

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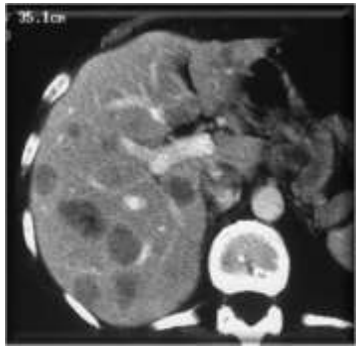
Razionale per trattamenti locoregionali

- Palliazione dei sintomi (tumori funzionanti)
- Riduzione della massa tumorale (**debulking**)
- Progressione monofocale

Nen

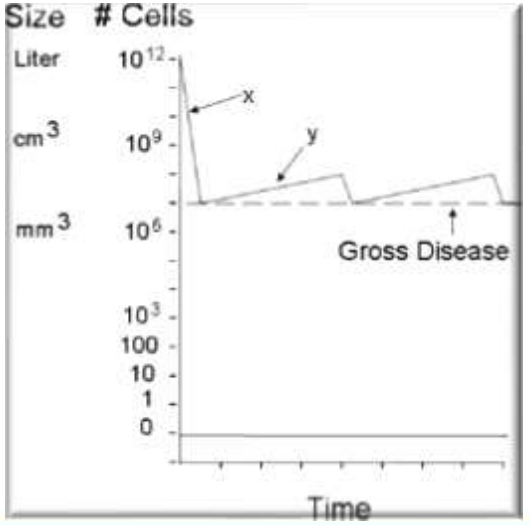
Indicazioni



- La prognosi dipende dal coinvolgimento epatico e i sintomi sono spesso correlati con le metastasi epatiche

RAZIONALE PER LA CITORIDUZIONE

Le procedure di citoriduzione sono efficaci per la lenta crescita dei tumori Neuroendocrini con lunghi periodi di benessere, e potenziale ripetibilità

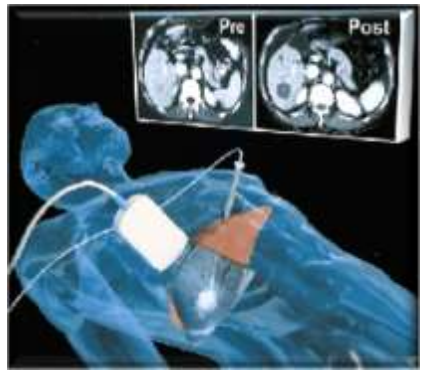


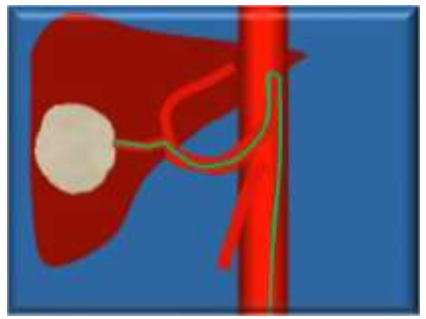
Cytoreduction is depicted by line x.
A long period may pass before regrowth of the tumor (y) to significant levels.

Maithel and Fong J. Surg. Oncol. 2009;100:635–638

Nen

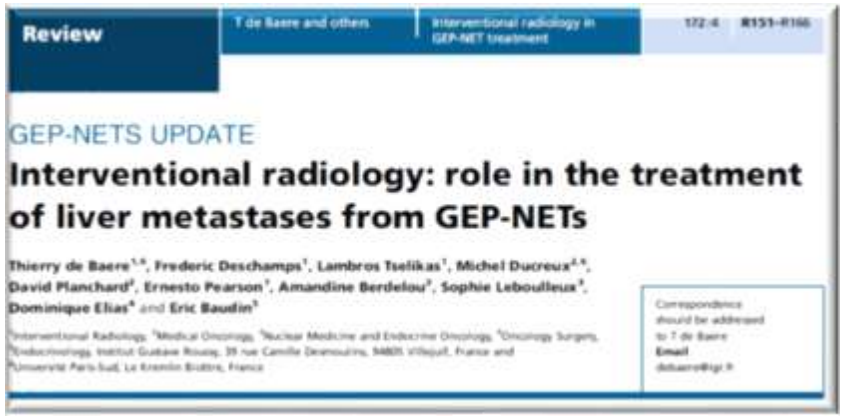
Indicazioni





- Percutanee
  - RFA- MWA
  - Tecniche combinate
- Intrarteriose
  - TAE (nuove particelle)
  - TACE
  - TARE

Nen


Review | T de Baere and others | Interventional radiology in GEP-NET treatment | 172:4 | R151–R166

GEP-NETS UPDATE

Interventional radiology: role in the treatment of liver metastases from GEP-NETs

Thierry de Baere[1,4], Frederic Deschamps[1], Lambros Tselikas[1], Michel Ducreux[2,4], David Planchard[2], Ernesto Pearson[1], Amandine Berdelou[2], Sophie Leboulleux[3], Dominique Elias[4] and Eric Baudin[3]

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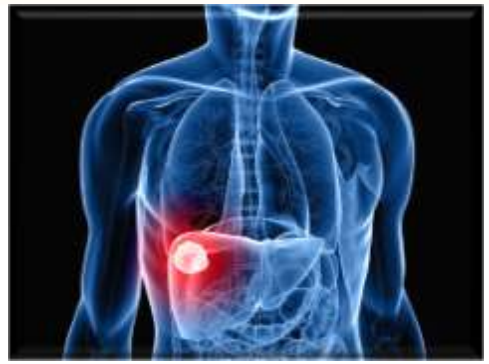


Abstract

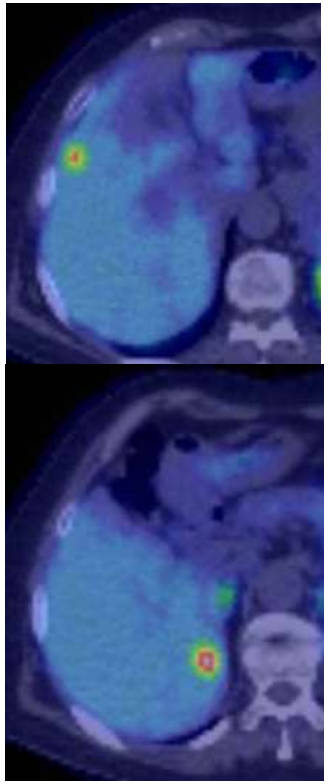
Neuroendocrine tumors from gastro-pancreatic origin (GEP-NET) can be responsible for liver metastases. Such metastases can be the dominant part of the disease as well due to the tumor burden itself or the symptoms related to such liver metastases. Intra-arterial therapies are commonly used in liver only or liver-dominant disease and encompass trans-arterial chemoembolization (TACE), trans-arterial embolization (TAE), and radioembolization (RE). TACE performed with drug emulsified in Lipiodol has been used for the past 20 years with reported overall survival in the range of 3–4 years, with objective response up to 75%. Response to TACE is higher when treatment is used as a first-line therapy and degree of liver involvement is lower. Benefit of TACE over TAE is unproven in randomized study, but reported in retrospective studies namely in pancreatic NETs. RE provides early interesting results that need to be further evaluated in terms of benefit and toxicity. Radiofrequency ablation allows control of small size and numbered liver metastases, with low invasiveness. Ideal metastases to target are one metastasis <5 cm, or three metastases <3 cm, or a sum of diameter of all metastases below 8 cm. Ablation therapies can be applied in the lung or in the bones when needed, and more invasive surgery should be probably saved for large-size metastases. Even if the indication of image-guided therapy in the treatment of GEP-NET liver metastases needs to be refined, such therapies allow for manageable invasive set of treatments able to address oligometastatic patients in liver, lung, and bones. These treatments applied locally will save the benefit and the toxicity of systemic therapy for more advanced stage of the disease.

European Journal of Endocrinology
(2015) **172**, R151–R166

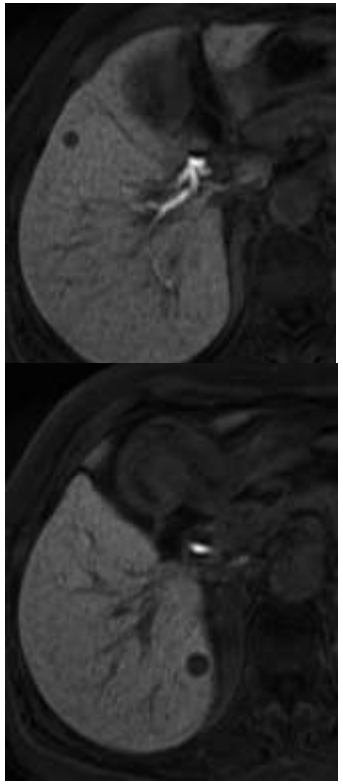
Nen

Termoablazione

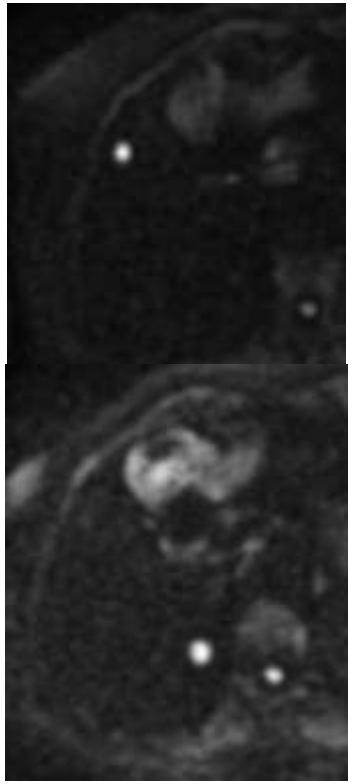
NEN ileo G1 , Ki67=1%, M+ fegato → emicolectomia dx + analogo → SD → intolleranza all'analogo



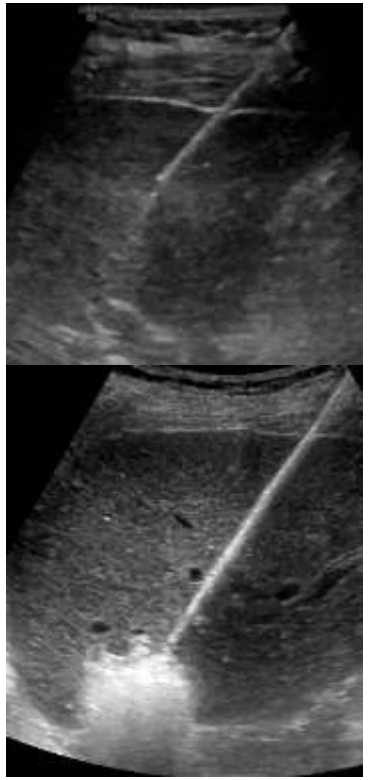
Pet Ga68



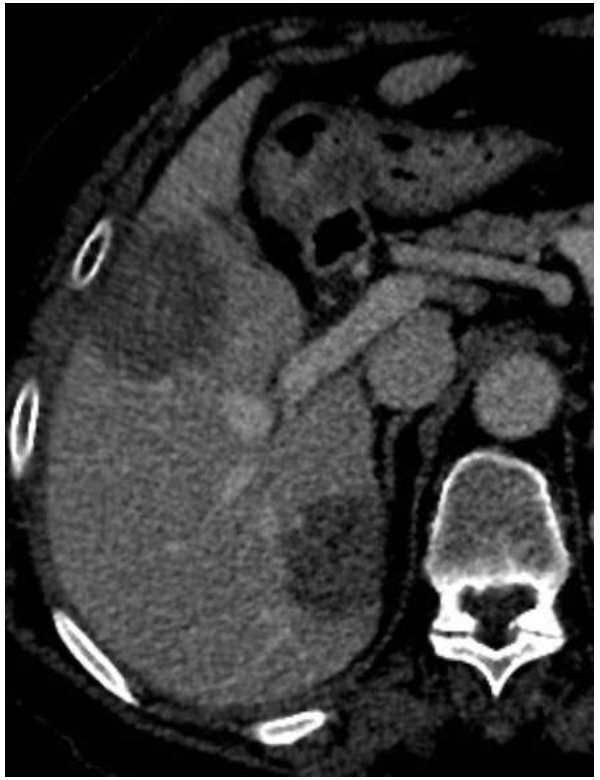
RMN +C



RMN diff



MWA



TC 24 hr

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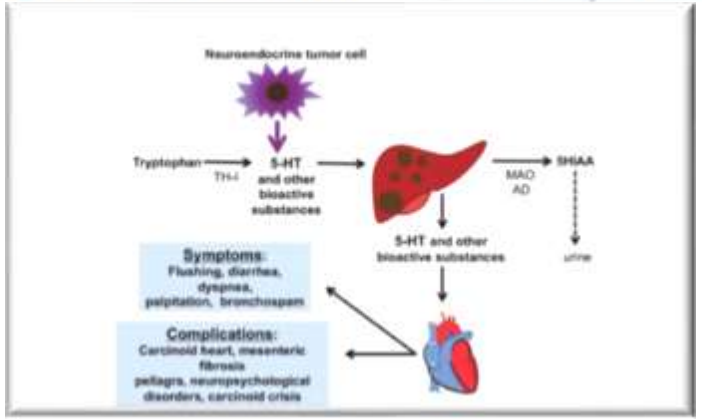
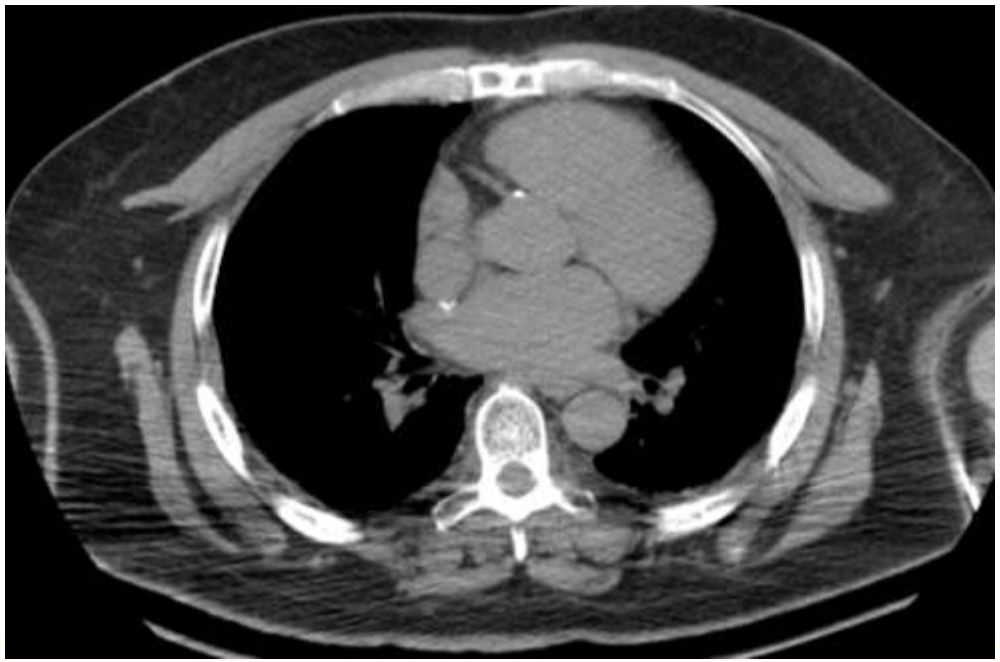
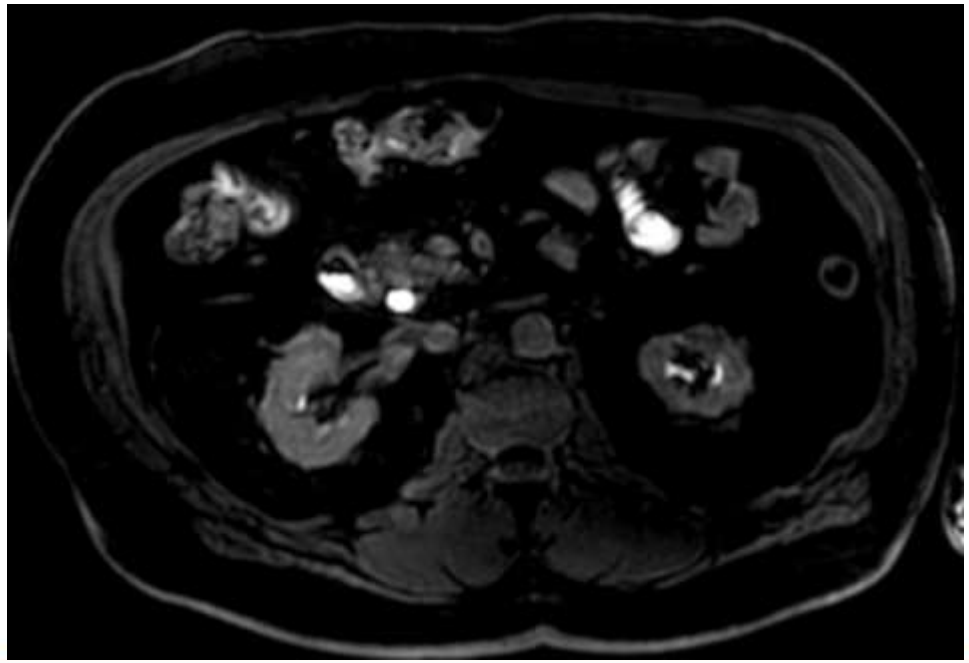
Nen

NEN ileale G2-3 , Ki67=30% ileo, 15%
M+ fegato, funzionante.
Programma : debulking per sindrome



TAE

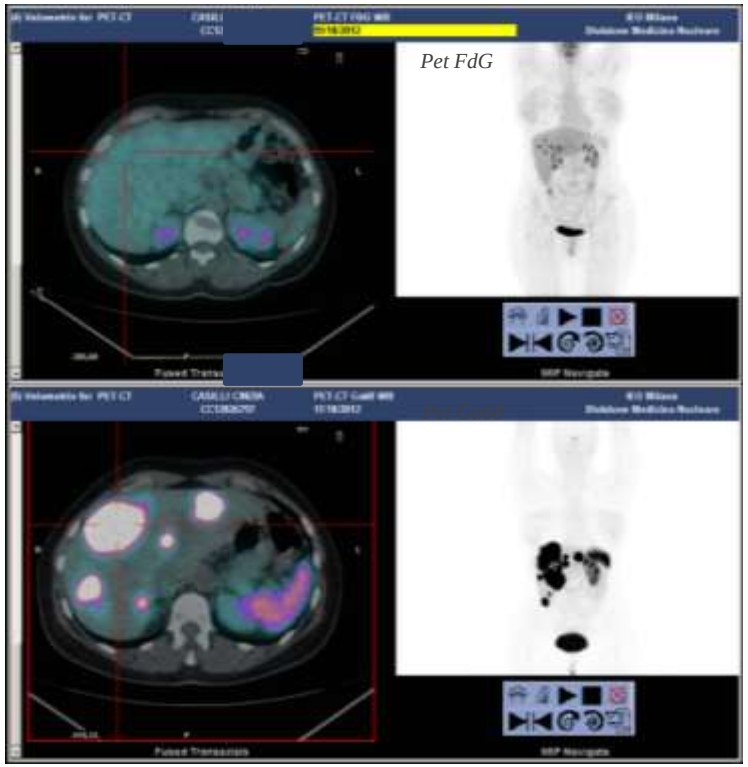


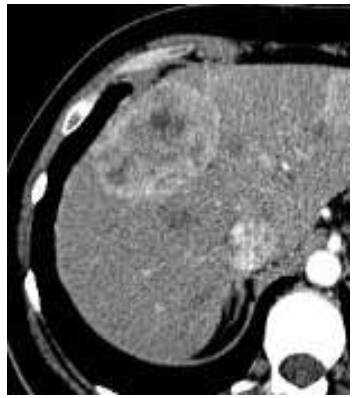


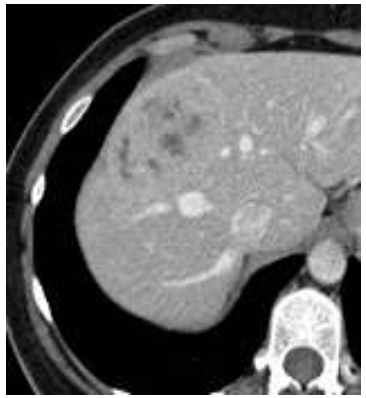
Nen

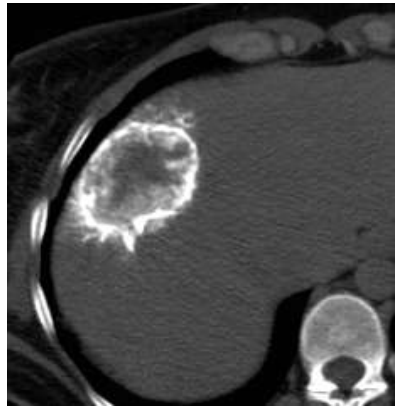
TAE

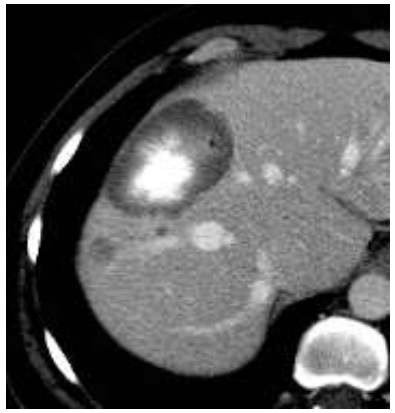
NEN pancreas G2 , Ki67=5%, M+ fegato, funzionante. Programma : debulkig + PRRT







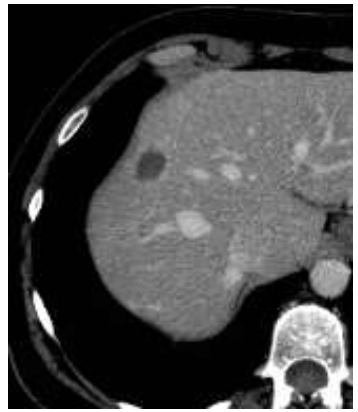




TAE

TC 24 hr

9 mesi



PRRT

Nen

TAE & PRRT

ORIGINAL ARTICLE

Safety and Effectiveness of ^{177}Lu-DOTATATE Peptide Receptor Radionuclide Therapy After Regional Hepatic Embolization in Patients With Somatostatin-Expressing Neuroendocrine Tumors

Mohammadali Hamiditabar, MD, Muzammil Ali, MD,* Luke Bolek, MD,* Gelareh Vahdati, MD,* Izabela Tworowska, PhD,† and Ebrahim S. Delpassand, MD*†*

DOTATATE (r = −0.59 to 0.17). In our analysis, the average time interval between CHE and PRRT was 32.4 months (4.2–134.8 months) and between RHE and PRRT was 30.5 months (4.8–93.6 months). Based on these data, it is advisable to perform PRRT 4 to 6 months after any HE procedure. This assessment may help answer the "safe time interval" concern before starting PRRT following HE.

Purpose: Peptide receptor radionuclide therapy (PRRT) with ^{177}Lu-DOTATATE is shown to be an effective therapeutic option for somatostatin-expressing neuroendocrine neoplasms. Some concerns are raised over safety of this modality in patients with a history of regional chemoembolization and radionuclide hepatic embolization (CRHE) and is cause of reluctance among some physicians for suggesting ^{177}Lu-DOTATATE in this patient population.

Methods: We retrospectively reviewed 143 patients with somatostatin-expressing neuroendocrine tumors who underwent ^{177}Lu-DOTATATE PRRT. Statistical analysis was performed on effect of ^{177}Lu-DOTATATE in patients with and without prior CRHE using resampling procedures and correlation coefficient (r).

Results: Proportion of toxicity in patients with and without CRHE was comparable (P = 0.246). No statistically significant correlation (r) found between any toxicity and prior CRHE (r = −0.3 to −0.03) or time elapsed between embolization and the first cycle of PRRT (r = −0.59 to 0.17). Following PRRT, 76.5% of patients with CRHE experienced benefit (partial response + stable disease), whereas 23.4% experienced progressive disease. Patients with CRHE showed more stable disease (P = 0.048) and less progressive disease (P = 0.046) following PRRT compared with no CRHE. The CRHE and no-CRHE status shared same probability for developing partial response/complete response following PRRT (P = 0.50).

Conclusions: Treatment with ^{177}Lu-DOTATATE did not show clinically or statistically significant toxicity in CRHE patients regardless of frequency of embolization or time interval between embolization and first PRRT. Results suggested a statistically significant higher response rate in patients with a history of CRHE. A prior history of CRHE is not a contraindication to subsequent PRRT.

TAE & Sunitinib

Nen

A phase II clinical trial of sunitinib following hepatic transarterial embolization for metastatic neuroendocrine tumors

J. R. Strosberg[1*], J. M. Weber[1], J. Choi[2], T. L. Campos[1], T. L. Valone[1], G. Han[3], M. J. Schell[3] & L. K. Kvols[1]

Departments of [1]Gastrointestinal Oncology; [2]Interventional Radiology; [3]Biostatistics, H. Lee Moffitt Cancer Center and Research Institute, Tampa, USA

Received 13 October 2011; revised 12 December 2011; accepted 13 December 2011

Background: The liver is the predominant site of metastases among patients with advanced neuroendocrine tumors (NETs). Prior retrospective studies have reported high response rates in patients treated with transarterial embolization (TAE). NETs are highly vascular and are known to express vascular endothelial growth factor (VEGF) and vascular endothelial growth factor receptor (VEGFR). We hypothesized that administration of sunitinib, a VEGFR inhibitor, following TAE would extend progression-free survival (PFS).

Patients and methods: Patients with metastatic NETs to the liver underwent a series of selective TAEs followed by sunitinib (until disease progression or maximum of 12 months). Radiographic response (by RECIST), survival, and safety parameters were monitored.

Results: Thirty-nine patients were enrolled. The overall response rate was 72% [95% confidence interval (CI), 0.58–0.86]. Median PFS was 15.2 months. Rates of overall survival (OS) at 1 and 4 years were 95% (95% CI, 0.88–1.00) and 59% (95% CI, 0.38–0.80), respectively. A significant 34% rise in serum VEGF was observed following the initial TAE ($P = 0.03$).

Conclusions: Hepatic TAE is a highly active treatment option for patients with metastatic NETs to the liver. Embolization stimulates release of VEGF into the circulation. Sunitinib, an oral VEGFR inhibitor, can be safely administered following embolization. The high rates of PFS and OS associated with this sequence of therapies are encouraging.

Nen

TACE

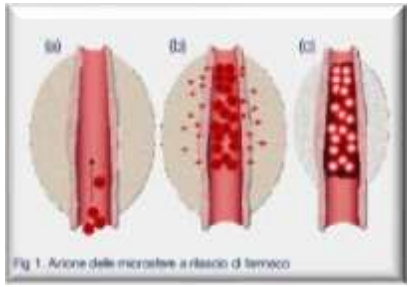
Drug

+

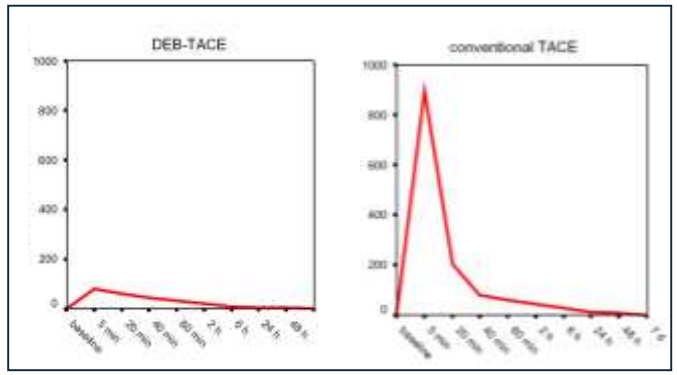
Lipiodol

Conventional chemoembolization

-DCBead



Serum doxorubicin levels at different time in patients receiving TACE with DC Bead or C-TACE



"..Beads sequester doxorubicin hydrochloride from solution and release it in a controlled and sustained fashion.."

Varela M et al. BCLC. J Hepatol 2007;100:698-711

Nen

TACE

NIH Public Access
Author Manuscript
Cardiovasc Interv Radiol. Author manuscript; available in PMC 2013 April 01.

Published in final edited form as:
Cardiovasc Interv Radiol. 2013 April ; 36(2): 449–459. doi:10.1007/s00270-012-0424-y.

Phase II Study of Chemoembolization With Drug-Eluting Beads in Patients With Hepatic Neuroendocrine Metastases: High Incidence of Biliary Injury

Results—DEB-TACE was successfully performed in all 13 patients. At 1 month follow-up, there was a mean 12 % decrease in tumor size (p <0.0003) and a 56 % decrease in tumor enhancement (p <0.0001). By EASL criteria, the targeted lesion objective response rate was 78 %. Grade 3 to 4 toxicities were fatigue (23 %), increased alanine amino transferase (15 %), hyperglycemia (15 %), and abdominal pain (8 %). Seven patients developed bilomas (54 %); all of these patients had multiple small (<4 cm) lesions. Subsequently, four underwent percutaneous drainage, three for abscess formation and one for symptoms related to mass effect.

Conclusions—Although biloma and liver abscess are known risks after TACE, the high incidence in our study population was unexpected and forced interruption of the trial. Although this occurred in a small group of patients, we have changed our technique and patient selection as a result of these findings, thus allowing resumption of the trial.

Recommendations

On the basis of the safety findings of our interim analysis, we modified our patient selection criteria and changed our DEB-TACE technique. We decided to include only patients with multiple large lesions (smallest lesion >4 cm) and extensive tumor burden. After the interim analysis, we no longer consider small multifocal disease (largest lesion <4 cm) for DEB-TACE treatment. The DEB-TACE procedure was also modified. The DEBs are now mixed with four times the amount of contrast to improve visualization of the DEBs, thereby preventing potential misadministration of the DEBs. We understand that these changes in

Nen

TACE

Research Article

EASL JOURNAL OF HEPATOLOGY

Liver/biliary injuries following chemoembolisation of endocrine tumours and hepatocellular carcinoma: Lipiodol *vs.* drug-eluting beads

Boris Guiu[1,2,*], Frédéric Deschamps[1], Serge Aho[3], Flore Munck[1], Clarisse Dromain[4], Valérie Boige[5], David Malka[5], Sophie Leboulleux[6], Michel Ducreux[5], Martin Schlumberger[7], Eric Baudin[6], Thierry de Baere[1]

Journal of Hepatology **2012** vol. 56 | 609–617

Background & Aims: Transarterial chemoembolisation (TACE) is usually performed by injecting an emulsion of a drug and iodised oil. Drug-eluting beads (DEBs) have undeniable pharmacological advantages by offering simultaneous embolisation and sustained release of the drug to the tumour. No data are currently available on liver/biliary injury following DEB-TACE. This study describes and compares liver/biliary injuries encountered with TACE in tumours developed in cirrhotic (hepatocellular carcinoma (HCC)) and non-cirrhotic (endocrine tumours (NETs)) livers.

Methods: In consecutive patients treated for a well-differentiated metastatic NET (n = 120) or a HCC (n = 88), 684 CT- and MR-scans were analysed. Liver/biliary injuries were classified as follows: dilated bile duct, portal vein narrowing, portal venous thrombosis and biloma/liver infarct. A generalised estimating equation logistic regression model was used.

Results: A liver/biliary injury followed 17.2% (82/476) of sessions in 30.8% (64/208) of patients. The occurrence of liver/biliary injury was associated with DEB-TACE (OR = 6.63; $p < 0.001$) irrespectively of the tumour type. Biloma/parenchymal infarct was strongly associated with both DEB-TACE (OR = 9.78; $p = 0.002$) and NETs (OR: 8.13; $p = 0.04$). Biloma/liver infarcts were managed conservatively but were associated with an increase in serum levels of aspartate aminotransferase, alanine aminotransferase, alkaline phosphatases, and gamma glutamyl transpeptidase ($p = 0.005$, $p = 0.005$, $p = 0.012$, and $p = 0.006$, respectively).

Conclusions: Liver/biliary injuries are independently associated with DEB-TACE. Biloma/liver infarct, the most serious injury, is independently associated with both DEB-TACE and NETs. The absence of such an association in TACE of HCC may be explained by the hypertrophied peribiliary plexus observed in cirrhosis, which protects against the ischemic/chemical insult of bile ducts. We suggest caution when using DEB-TACE in the non-cirrhotic liver.

Introduction

Transcatheter arterial chemoembolisation (TACE) combines the cytotoxic action of selectively-injected intra-arterial chemotherapy and the ischemic effects of embolising agents. TACE has been widely used to treat hepatic malignancies including liver metastases from endocrine tumours (NETs) and hepatocellular carci-

Nen

TACE

Haemodynamic events and localised parenchymal changes following transcatheter arterial chemoembolisation for hepatic malignancy: interpretation of imaging findings

J CHUNG, MD, J-S YU, MD, J-J CHUNG, MD, J H KIM, MD and K W KIM, MD

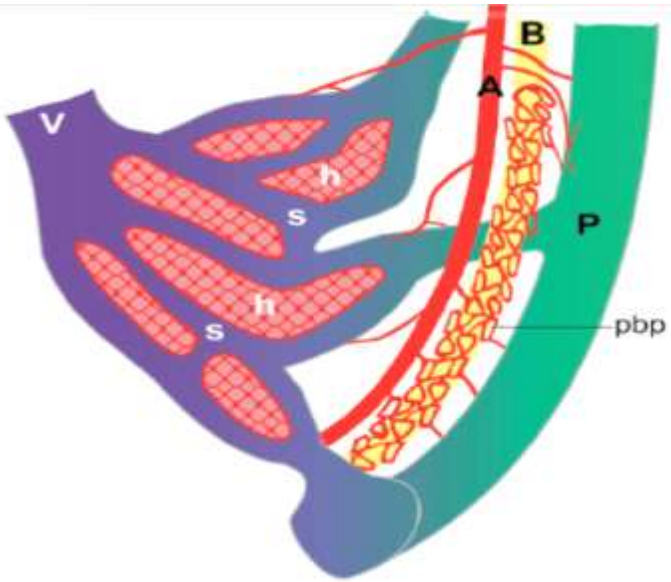


Figure 1. Schematic anatomy of normal hepatic vessels. The hepatic artery (A) primarily supplies the hepatic framework of the portal tract, which consists of the portal vein (P), bile duct (B) and hepatic artery. There are capillary networks between the hepatic artery (A) and portal vein (P), which is called the peribiliary plexus (pbp), and the portal venous flow affords sinusoidal (s) perfusion, supplying the hepatocytes (h). V, hepatic vein.

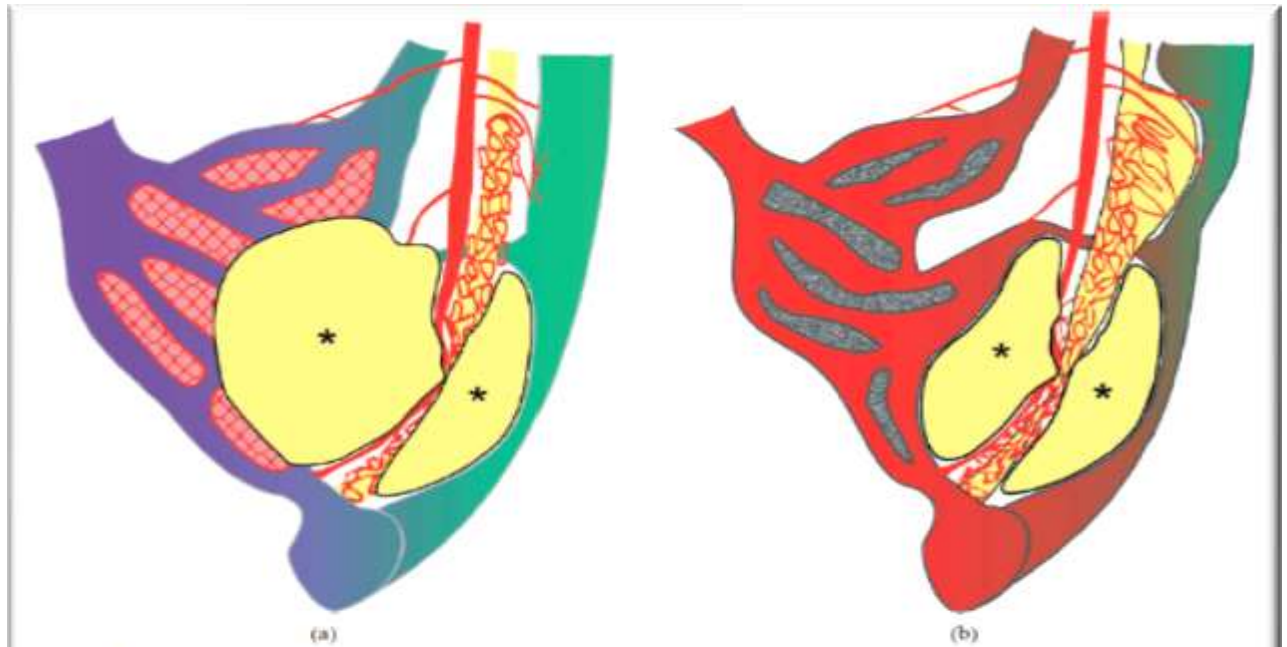


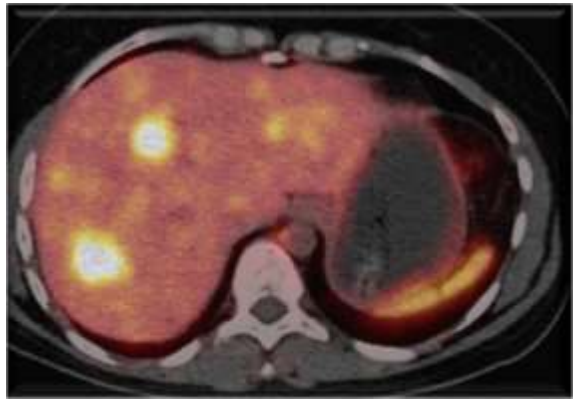
Figure 3. Schemata of acute and chronic transcatheter arterial chemoembolisation (TACE)-induced bile duct injury and portal vein obliteration, with or without parenchymal infarct. (a) In the acute stage, necrosis of the bile duct induces rupture of the bile duct and biloma formation (asterisks) along the portal tract. A large cystic biloma can occupy the space of the acutely infarcted parenchyma. (b) In the chronic stage, the portal tract injury with stricture and dilatation of the bile ducts is accompanied by gradual portal vein obliteration, resulting in parenchymal atrophy.

The British Journal of Radiology, 83 (2010), 71–81

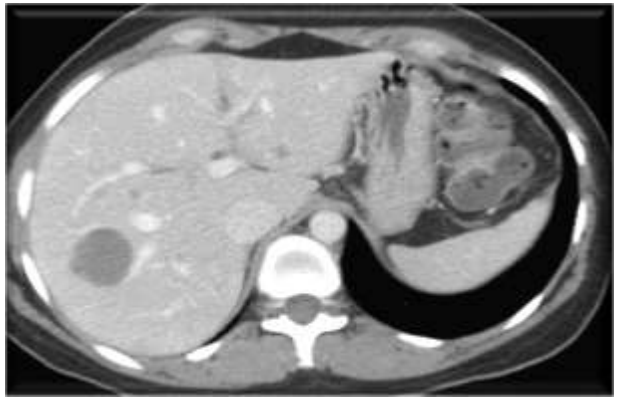
Nen

TACE

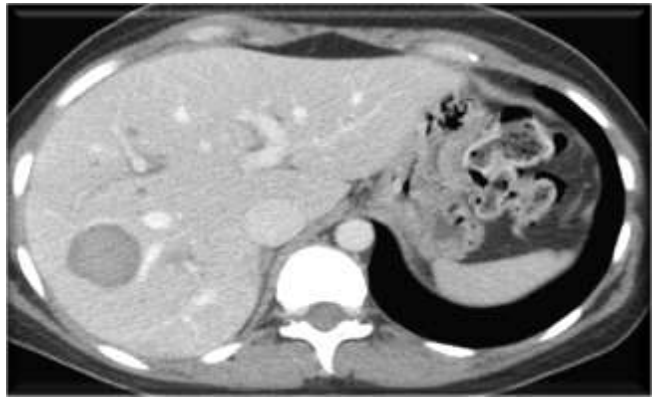
NEN duodeno, M+ fegato, Ki 67= 4% Tandem 40mm x 2,5ml+Doxo 125mg



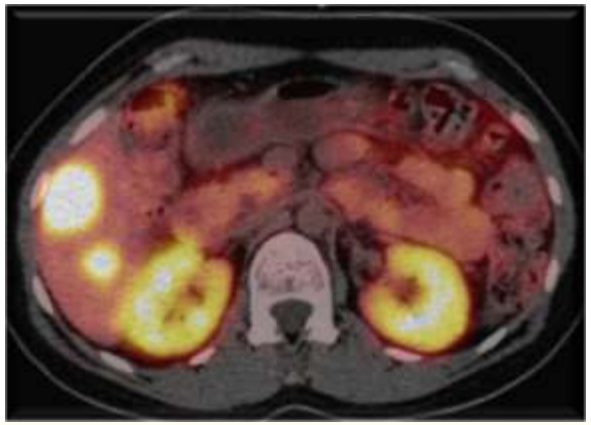
^{68}Ga-PET+

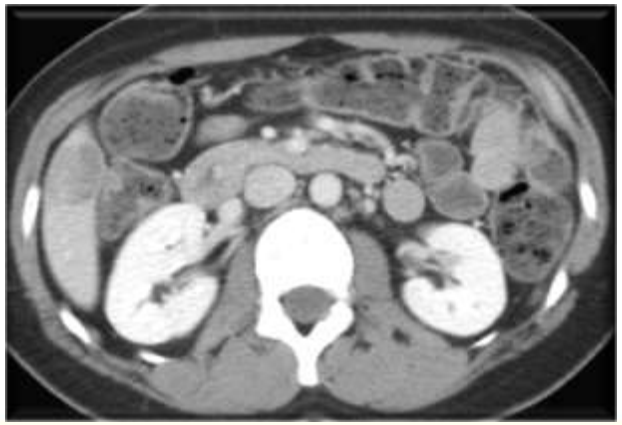


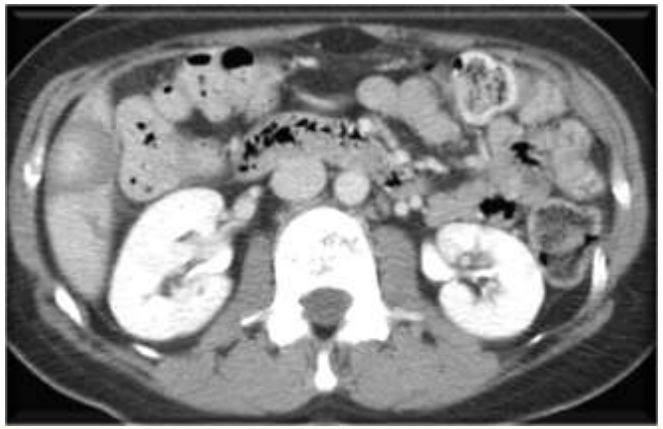
CT-pre



CT-post







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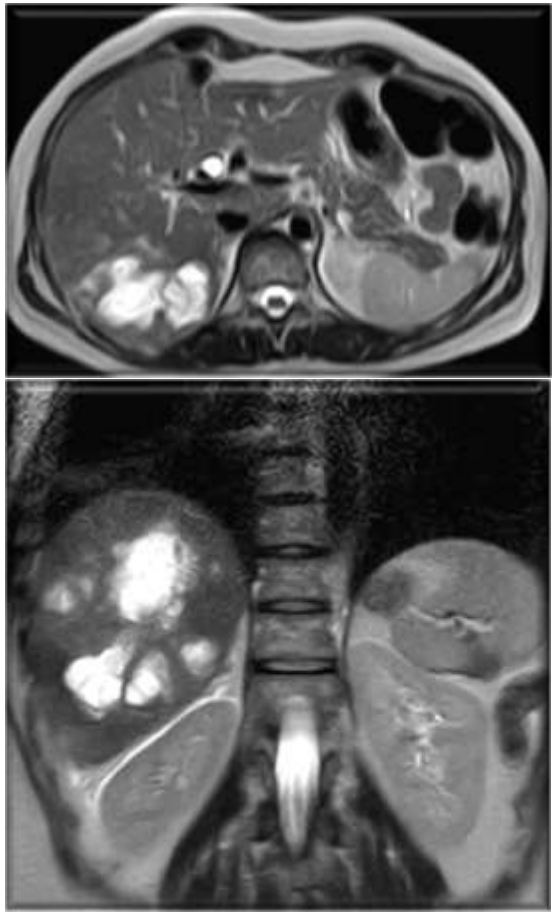

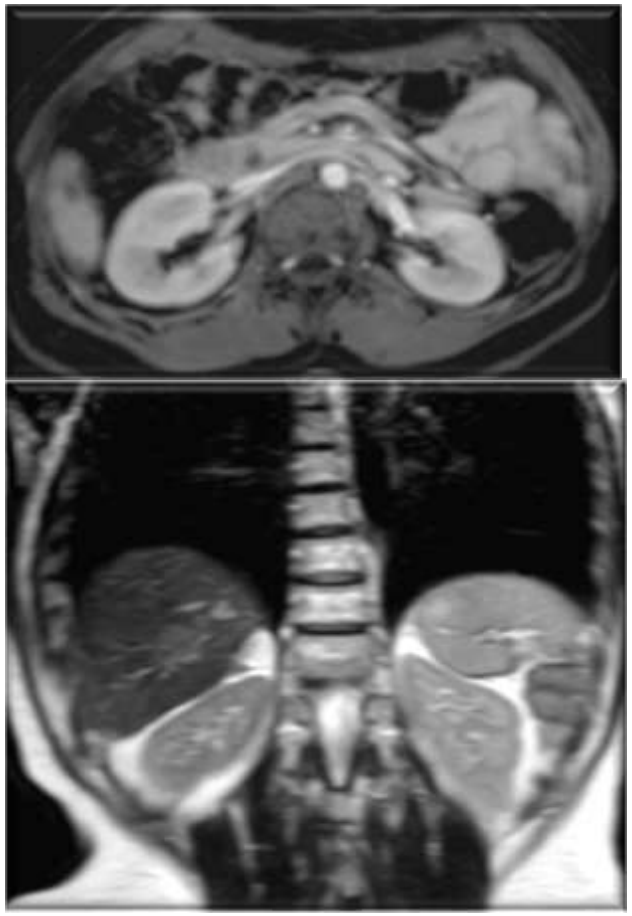

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TARE

It is defined as the injection of embolic particles loaded with a radioisotope through the percutaneous transarterial technique.

- (^{90}Y)-loaded microspheres is an alternative treatment for patients with unresectable primary or secondary liver tumours

-Whole liver
-Lobar
-Segmental

Nen

TARE

World J Surg (2018) 42:506–513
DOI 10.1007/s00268-017-4324-9

ORIGINAL SCIENTIFIC REPORT

Radioembolization Versus Bland Embolization for Hepatic Metastases from Small Intestinal Neuroendocrine Tumors: Short-Term Results of a Randomized Clinical Trial

Anna-Karin Elf[1] · Mats Andersson[2] · Olof Henrikson[2] · Oscar Jalnefjord[3] · Maria Ljungberg[3] · Johanna Svensson[4] · Bo Wängberg[1] · Viktor Johanson[1]

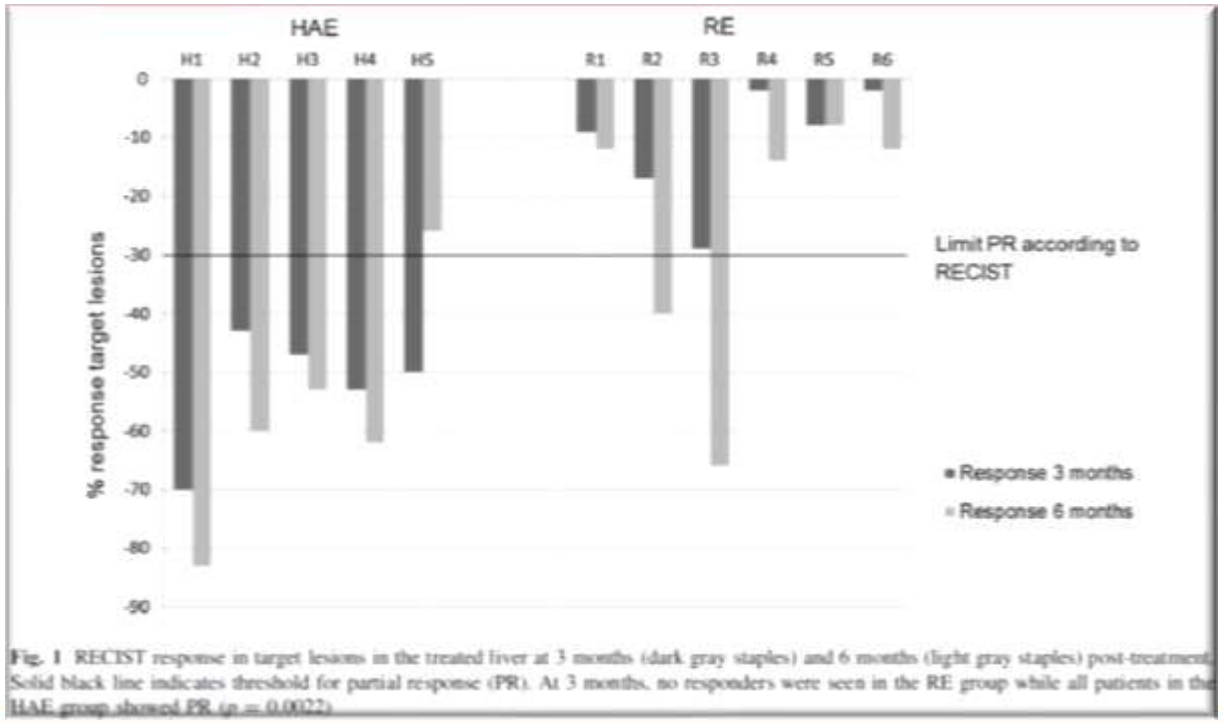

Fig. 1 RECIST response in target lesions in the treated liver at 3 months (dark gray staples) and 6 months (light gray staples) post-treatment. Solid black line indicates threshold for partial response (PR). At 3 months, no responders were seen in the RE group while all patients in the HAE group showed PR ($p = 0.0022$)

Nen

TARE

Radioembolization-induced liver disease: a systematic review

Marion N.G.J.A. Braat[a], Karel J. van Erpecum[b], Bernard A. Zonnenberg[a], Maurice A.J. van den Bosch[a] and Marnix G.E.H. Lam[a]

Radioembolization (
embedded with a p
arteries and norma
injury, with lethal RE
RE-related hepatotox
REILD. A systematic
screened for definiti
abnormalities occur
0 and 31%, although
presentation of hepa
established in the c
hepatotoxicity is a c
precluding reliable c
Hepatol 29:144–152

Liver Disease Induced by Radioembolization of Liver Tumors

Description and Possible Risk Factors

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Belen Gil-Alzugaray, MD[1]
Javier Rodriguez, MD, PhD[2]
Iosu Sola, MD, PhD[3]
Antonio Martinez-Cuesta, MD, MBAc, FRCR[4]
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BACKGROUND. To the authors' knowledge, liver damage after liver radioembolization with yttrium90-labeled microspheres has never been studied specifically.

METHODS. Using a complete set of data recorded prospectively among all patients without previous chronic liver disease treated by radioembolization at the authors' institution from September 2003 to July 2006, patterns of liver damage were identified and possible risk factors were analyzed.

RESULTS. In all, 20% of patients developed a distinct clinical picture that appeared 4 to 8 weeks after treatment and was characterized by jaundice and ascites. Veno-occlusive disease was the histologic hallmark observed in the most severe cases. This form of sinusoidal obstruction syndrome was not observed among patients who never received chemotherapy or in those in whom a single hepatic lobe was treated. Relevant to treatment planning, a possible risk factor was a higher treatment dose in relation to the targeted liver volume. A transjugular intrahepatic stent shunt improved liver function in 2 patients with impending liver failure, although 1 of them eventually died from it.

CONCLUSIONS. Radioembolization of liver tumors, particularly after antineoplastic chemotherapy, may result in an uncommon but potentially life-threatening form of hepatic sinusoidal obstruction syndrome that presents clinically with jaundice and ascites. *Cancer* 2008;112:1538–46. © 2008 *American Cancer Society*.

…available definitions of radioembolization-induced liver disease

	n	Definition of REILD
…al. [14]	45	Potentially life-threatening liver damage characterized by jaundice and ascites developing 4–8 weeks after treatment, with pathologic changes consistent with VOD in the most severe cases
[29]	12	REILD is characterized by jaundice and ascites as a form of sinusoidal obstruction syndrome. Definition according to Sangro *et al.* [14]
…al. [13]*	13	A syndrome characterized by ascites with an onset ~ 2–4 weeks after irradiation. This may be accompanied by hyperbilirubinemia and tender hepatomegaly
…al. [22]*	515	RILD has been described after external beam radiation and is widely acknowledged to be a clinical entity that can present with ascites 2 weeks to 4 months after hepatic radiation. Clinically, patients develop rapid weight gain, increased abdominal girth, liver enlargement, jaundice, and increased transaminase levels, particularly alkaline phosphatase
…er *et al.* [30]	34	REILD was diagnosed by clinical presentation of jaundice and ascites and a bilirubin increase of > 50 μmol/l (2.9 mg/dl). Definition according to the definition by Sangro *et al.* [14]
…y *et al.* [17]	260	REILD was defined as the appearance of a serum total bilirubin of 3 mg/dl or higher and ascites (clinically or by imaging) 1–2 months after RE in the absence of tumor progression or bile duct obstruction
[25]	247	REILD was suspected in the presence of signs and symptoms including jaundice, fatigue, ascites, and changes in laboratory values (elevated serum bilirubin, AST, ALT, alkaline phosphatase and ammonia; decreased albumin) in the absence of hepatic tumor progression
…Ros *et al.* [16]	14	Definition according to Sangro *et al.* [14]
[36]	21	Definition according to Sangro *et al.* [14]
[24]	30	REILD was defined as the appearance of a serum total bilirubin of 3 mg/dl (51 μmol/l) or higher, plus new appearance of ascites within 3 months after RE, which could not be explained by tumor progression or bile duct obstruction. Definition according to Gil-Alzugaray *et al.* [17]
…[15]*	427	REILD has a typical onset of 4–8 weeks after radioembolization and patients present with jaundice and ascites in the absence of tumor progression or bile duct dilatation

…bolization; REILD, radioembolization-induced liver disease; RILD, radiation-induced liver disease.
…t RILD in a study solely evaluating RE treatments consistent with the authors' definition of REILD.

Nen

TARE

CLINICAL STUDY

Long-Term Hepatotoxicity of Yttrium-90 Radioembolization as Treatment of Metastatic Neuroendocrine Tumor to the Liver

Yu-Kai Su, MD, Rosewell V. Mackey, MD, Ahsun Riaz, MD, Vanessa L. Gates, MS, Al B. Benson, III, MD, Frank H. Miller, MD, Vahid Yaghmai, MD, Ahmed Gabr, MD, Riad Salem, MD, and Robert J. Lewandowski, MD

ABSTRACT

Purpose: To determine long-term hepatotoxicity of yttrium-90 (^{90}Y) radioembolization in patients treated for metastatic neuroendocrine tumor (mNET) and evaluate if imaging and laboratory findings of cirrhosis-like morphology are associated with clinical symptoms.

Materials and Methods: Retrospective review from 2003 to 2016 was performed for patients with mNET treated with ^{90}Y glass microspheres. Fifty-four patients with > 2 year follow-up were stratified into unilobar (n = 15) vs whole-liver (n = 39) treatment. The most common primary mNET sites were small bowel (19 of 54), pancreas (19 of 54), and unknown (8 of 54). Pre-radioembolization imaging and laboratory findings were compared with most recent follow-up for indications of worsening portal hypertension and decline in hepatic function.

Results: Among patients who underwent unilobar radioembolization, imaging follow-up at a mean of 4.1 years (range, 2.0–15.2 y) revealed cirrhosis-like morphology in 26.7% (4 of 15), ascites in 13.3% (2 of 15), varices in 6.7% (1 of 15), and a 21.9% increase in splenic volume. The respective incidences in patients treated with whole-liver ^{90}Y radioembolization were 56.4% (22 of 39), 41.0% (16 of 39), and 15.4% (6 of 39), with a 64.7% increase in splenic volume. Patients treated with whole-liver radioembolization exhibited significantly decreased platelet counts ($P = .023$) and lower albumin levels ($P = .0002$). Eight patients (20.5%) treated with whole-liver radioembolization who exhibited cirrhosis-like morphology showed clinical signs of hepatic decompensation; only 2 of 39 patients (5.1%) had no other causes of hepatotoxicity.

Conclusions: Whole-liver ^{90}Y radioembolization for patients with mNET results in long-term imaging findings of cirrhosis-like morphology and portal hypertension in > 50% of treated patients, but the majority remain clinically asymptomatic. Long-term hepatotoxicity solely attributable to ^{90}Y develops in a small percentage of patients.

ABBREVIATIONS

mNET = metastatic neuroendocrine tumor, ^{90}Y = yttrium-90

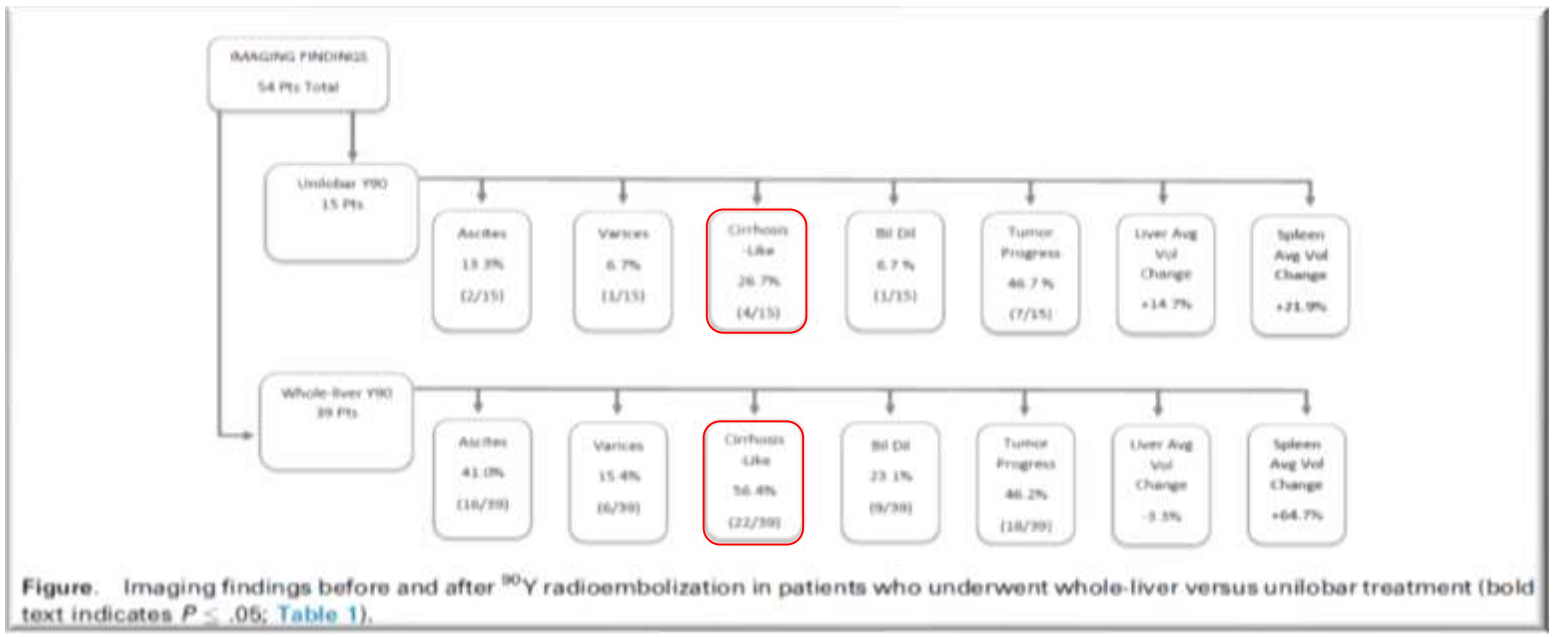

Figure. Imaging findings before and after ^{90}Y radioembolization in patients who underwent whole-liver versus unilobar treatment (bold text indicates $P \leq .05$; Table 1).

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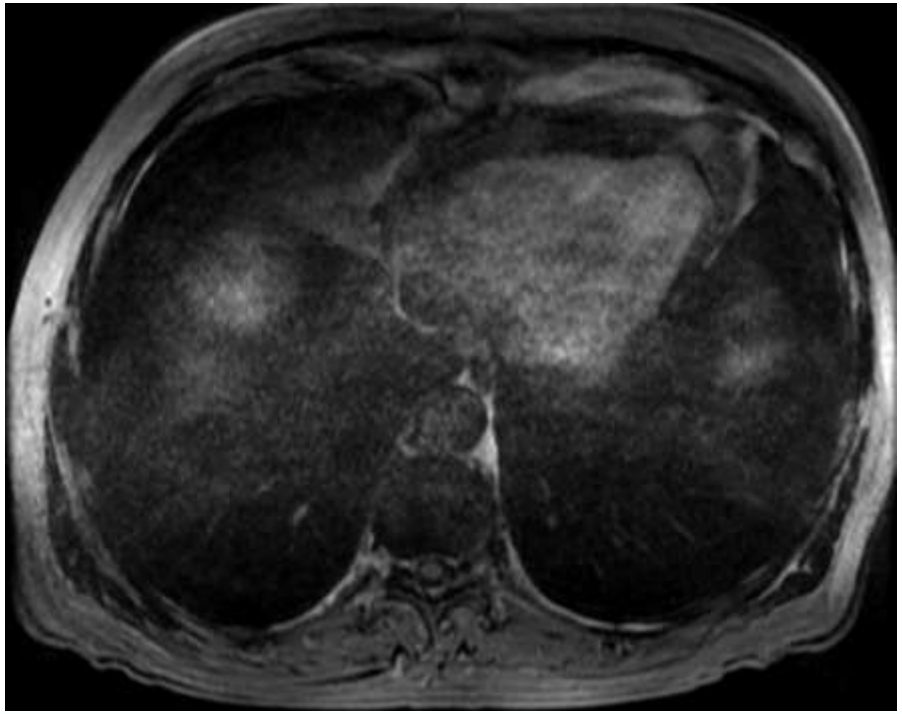
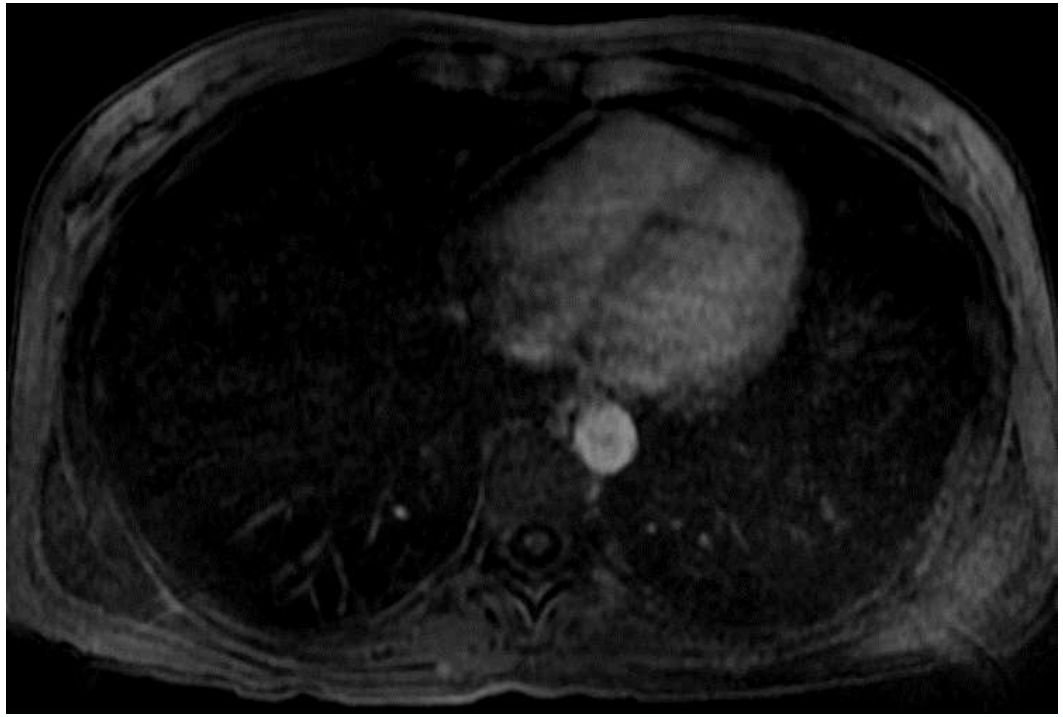
NET colon dx , M+ fegato, Ki 67= 7%
Trattamento: C-TACE 11/2002;
TAE 01-04-09/2015, 11/2017



TARE

Melanoma uveale, M+ fegato (9/2016→ 4/2018 AVASTIN bimestrale)
Trattamento: TARE lobo dx 6/2018; lobo sin 9/2018



VIII EDIZIONE

NEN PRECEPTORSHIP

LA PRATICA CLINICA NELLE NEOPLASIE NEUROENDOCRINE

16/17 Maggio 2019 | IEO, Istituto Europeo di Oncologia - Milano

NEN Preceptorship

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