La chemioembolizzazione

Giovanni De Caro
Alessandro Casaleggio

Ospedale Evangelico Internazionale
Ente Ecclesiastico Civilmente Riconosciuto
Sede Legale: Sal. Sup. S. Rocchino, 31a - 16122 Genova
Presidio Ospedaliero di Genova Voltri,
Piazzale Gianasso, 4 - 16158 - Genova

Il Nodulo Epatico

dalla Diagnosi ... alla Terapia

Sede dell'Evento
Sala Conferenze
Biblioteca "Rosanna Benzi"
Piazza Odicini, 10
16158 Genova Voltri

21 settembre 2013

Radiologia Vascolare e Interventistica

Unità Operativa a Direzione Universitaria

Definizione e standardizzazione della terminologia

- **Ablazione tumorale:** ***diretta*** **applicazione di agenti chimici o fisici ad uno specifico sito tumorale nel tentativo di ottenere una distruzione tumorale completa o sostanziale**
- **Procedure endovascolari:** ***indiretta*** **applicazione di agenti chimici o fisici attraverso l'albero vascolare ad un organo sede di tumore a scopo citoriduttivo**
- **Procedure miste: associazione tra le due per potenziare l'effetto**

Principi della metodologia e meccanismo d'azione

La
et
del
cu

yon

ette

Il razio

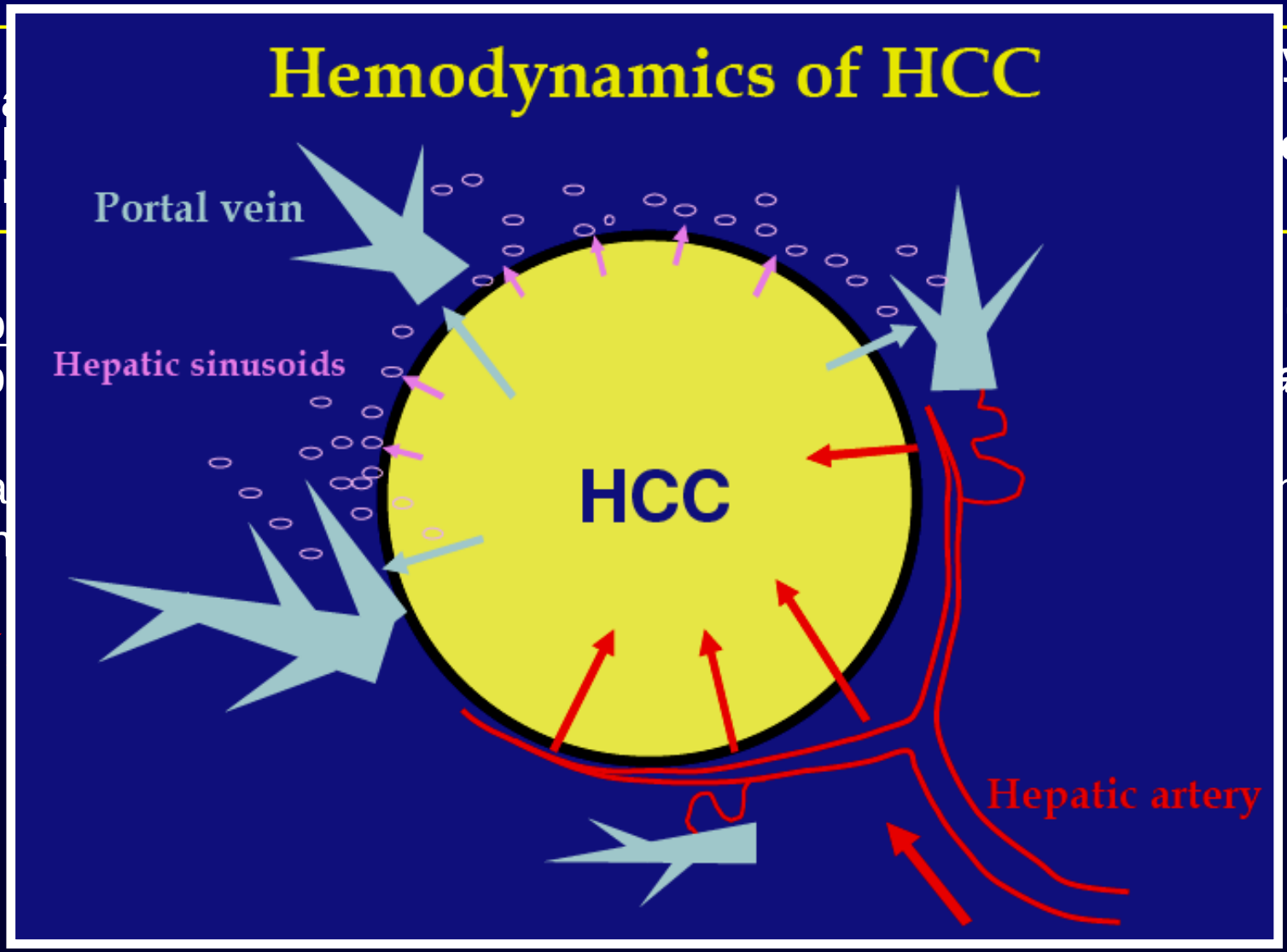
75 %
del fab

a.

Tale ra

ne
ricevon

VERY



La TACE si propone i seguenti obiettivi

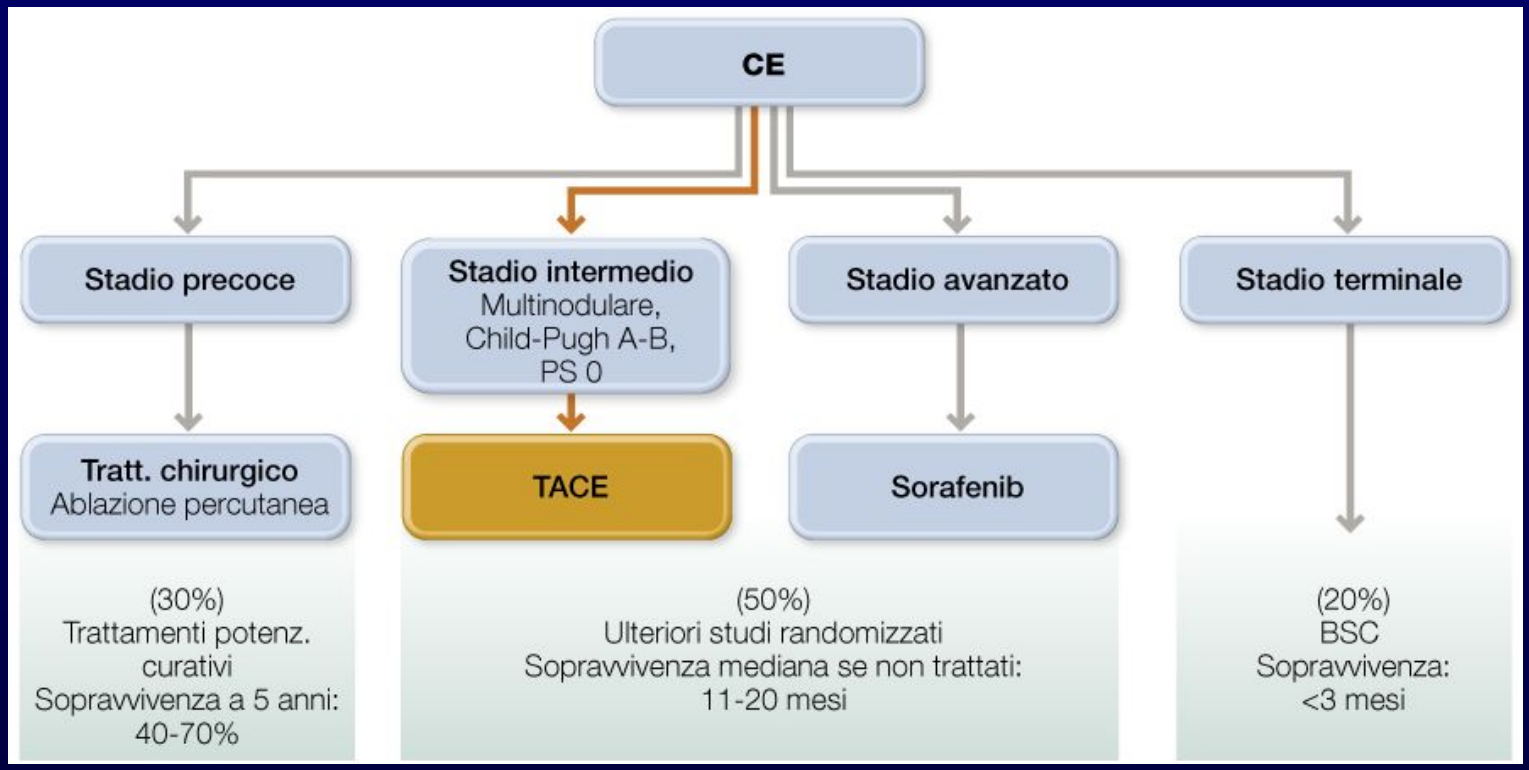
Aumento della ***concentrazione*** *del farmaco* entro il tumore attraverso l'iniezione arteriosa selettiva, da 10 a 100 volte rispetto all'infusione sistemica.

Aumento del ***tempo di contatto*** *con il farmaco* indotto dall'arresto del flusso arterioso provocato dall'embolizzazione; l'*ischemia aumenta l'effetto di farmaci*, che potenziano la loro efficacia in condizioni di ipossia.

Miglior ***clearance epatica*** *del farmaco,* che comporta una riduzione della concentrazione sistemica, con maggiore effetto farmacologico al primo passaggio.

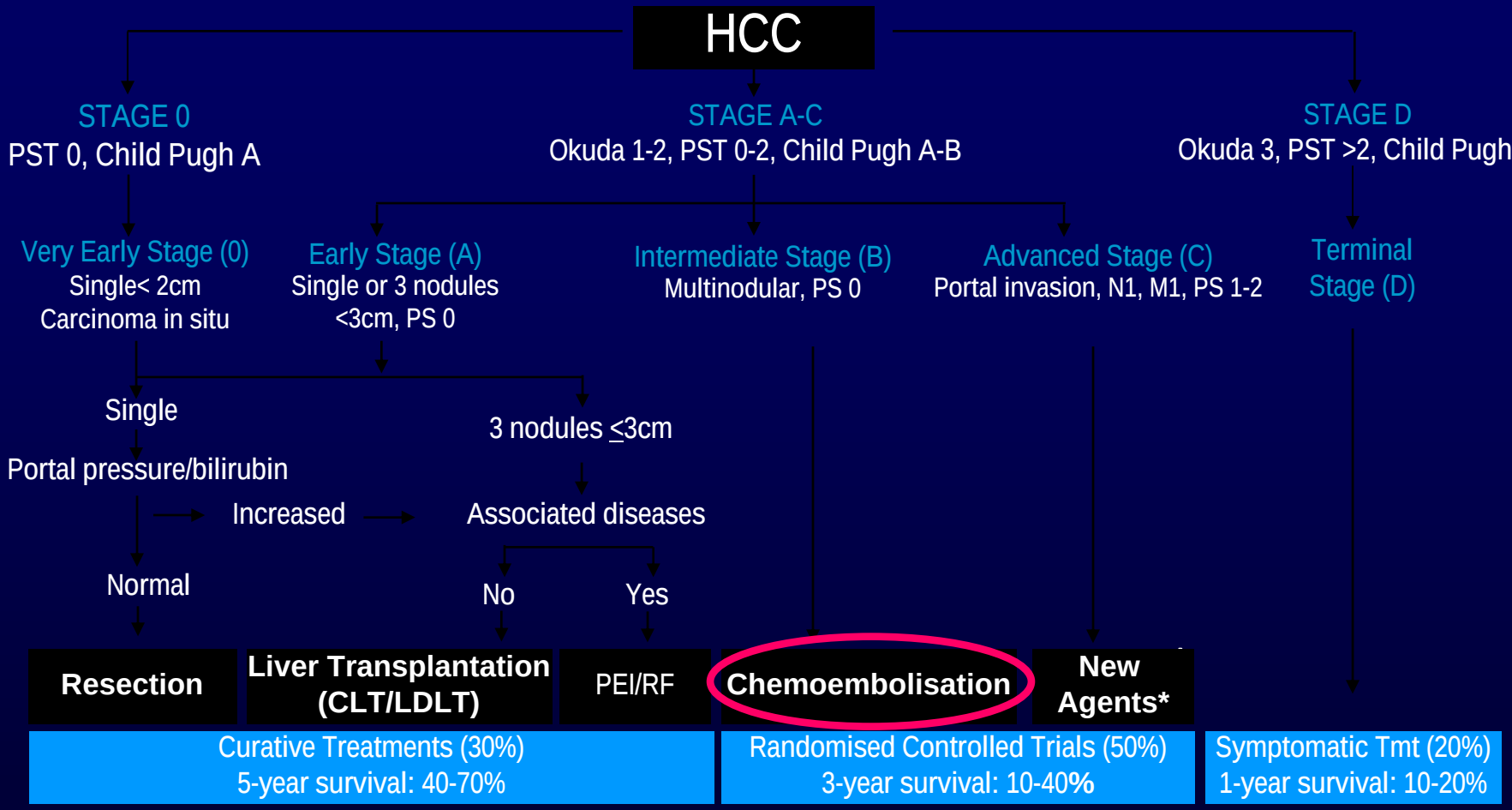
TACE: indicazioni

- **Multifocalità**
- **Nodulo singolo in pz. non candidato a chirurgia, PEI o RF** ***(generalmente nodulo > 5 cm)***
- **Preoperatoria** ***(resezione o trapianto)***
- **Recidive postoperatorie!**
- **Terapia integrata** ***(con associazione PEI o RF)***



Algoritmo terapeutico per il trattamento dell'HCC secondo le linee guida dell'AASLD (2005) (Modificata da Bruix e Llovet)

BCLC Staging and Treatment Schedule



* New agents now generally include Sorafenib

Llovet JM, Semin Liv Dis, 1999; Lancet, 2003

cTACE

Conventional
Transcatheter Arterial
Chemo Embolization

Somministrazione intra-arteriosa di LIpiodol + chemioterapico ed embolizzazione con particelle riassorbibili.

pTACE

Precision Transcatheter Arterial
Chemo Embolization

Somministrazione intra-arteriosa di microsfere non riassorbibili a rilascio controllato di chemioterapico.

"...Tace with DC Bead is effective and safer than conventional TACE in terms of liver and cardiac toxicity and offers a benefit to patients with more advanced disease..."

cTACE

"...is the standard treatment for solitary lesion < 8cm or multinodular tumors (>3 lesions) in patients with well preserved liver function..."

pTACE

"...may be an option particuraly in patients with more advanced liver disease or patients with mild-moderate cardiac failure..."

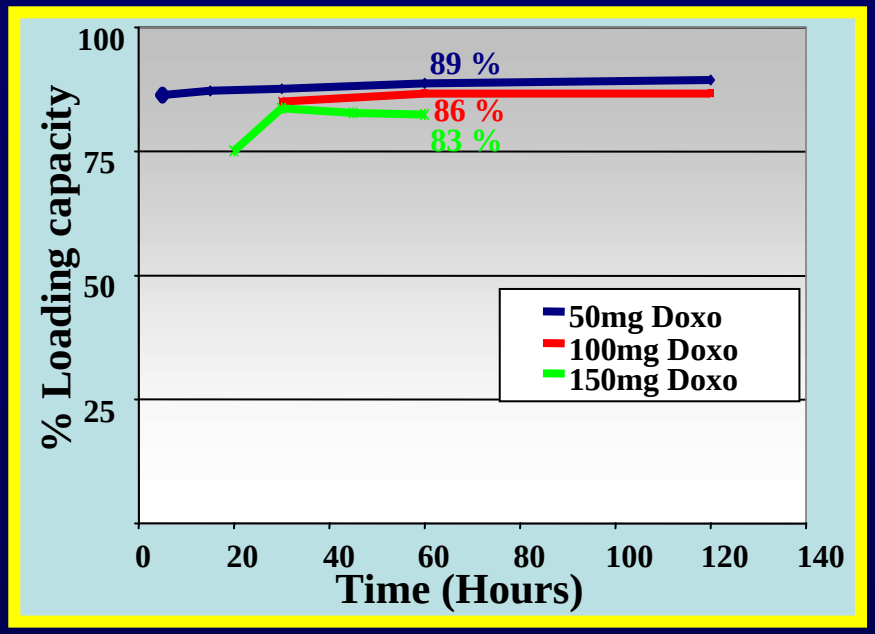
pTACE: razionale

- Trattamento superselettivo del solo nodulo tumorale mediante l'utilizzo di un nuovo materiale embolizzante **non riassorbibile**, idrofilo, precalibrato e biocompatibile (**Hepasphere, DCBead**).
- Espandibilità delle hepasphere (x4 rispetto al volume a secco).
- Deformabilità (non traumatica) e plasticità nel contesto del lume vasale, dopo l'aumento dimensionale.
- Ottimale assorbimento del chemioterapico (doxorubicina) e rilascio controllato.

Hepaspheres + Doxorubicina

- Microsfere caricate negativamente (polimero anionico)
- Forti interazioni con chemioterapici caricati positivamente come la Doxorubicina; la tossicità sistemica si riduce.

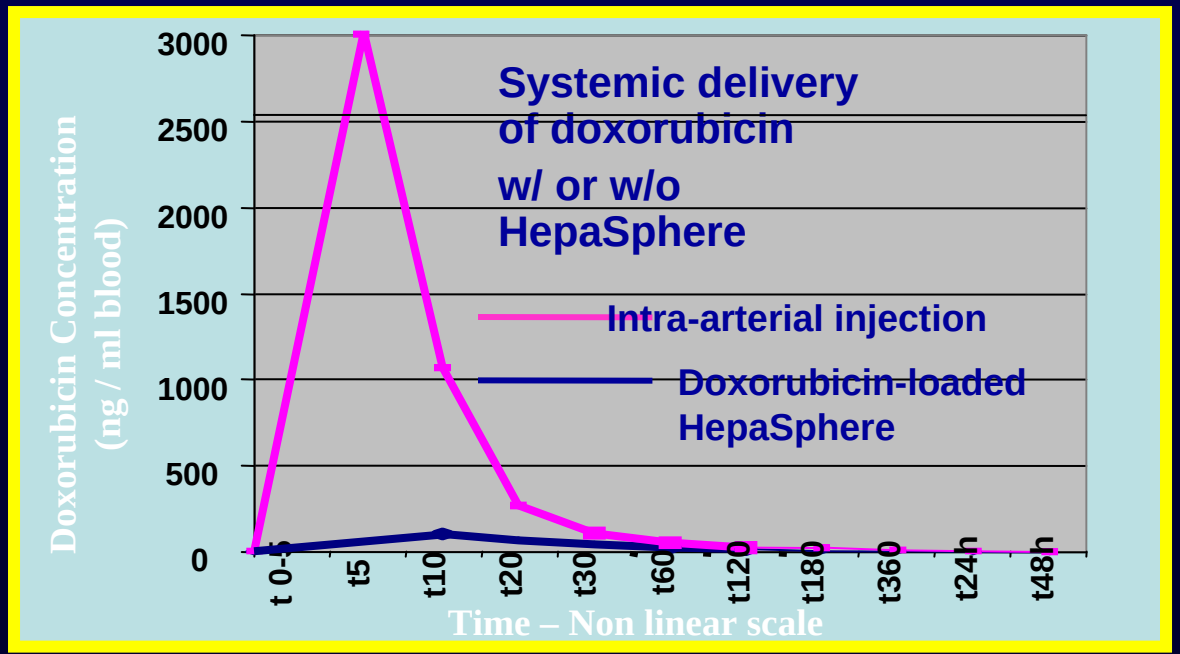
Capacità di assorbimento della Doxorubicina



Valutazione in vivo della concentrazione sistemica di chemioterapico.

- 25mg di HepaSphere possono essere caricati con 125 mg Doxorubicina

- 30 minuti sono sufficienti per caricare il 95%della soluzione di Doxorubicina.



...evoluzione della TACE

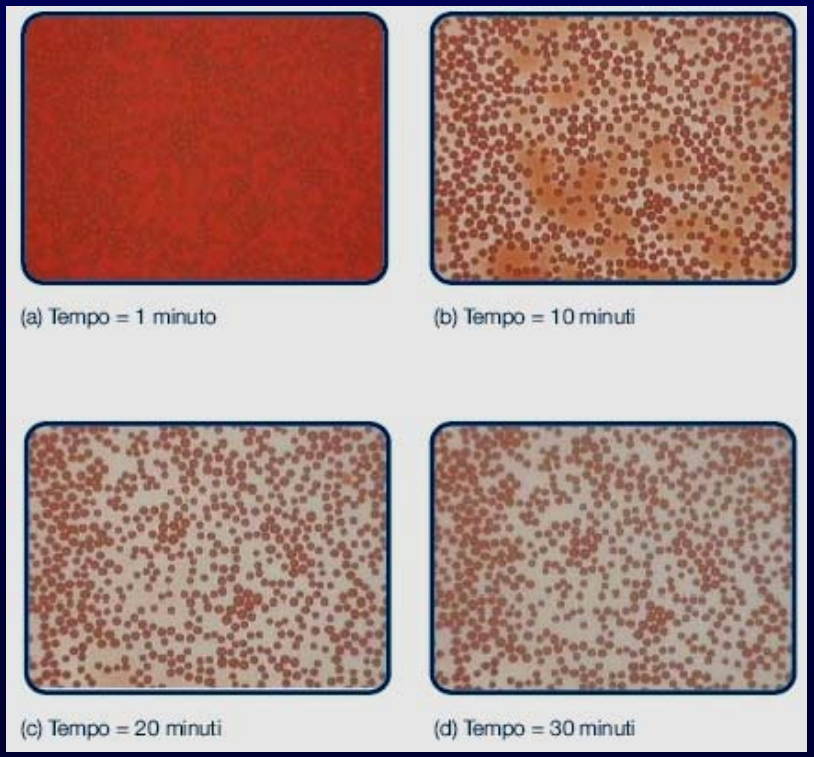
Si è sviluppato il concetto del
Drug-Eluting Beads

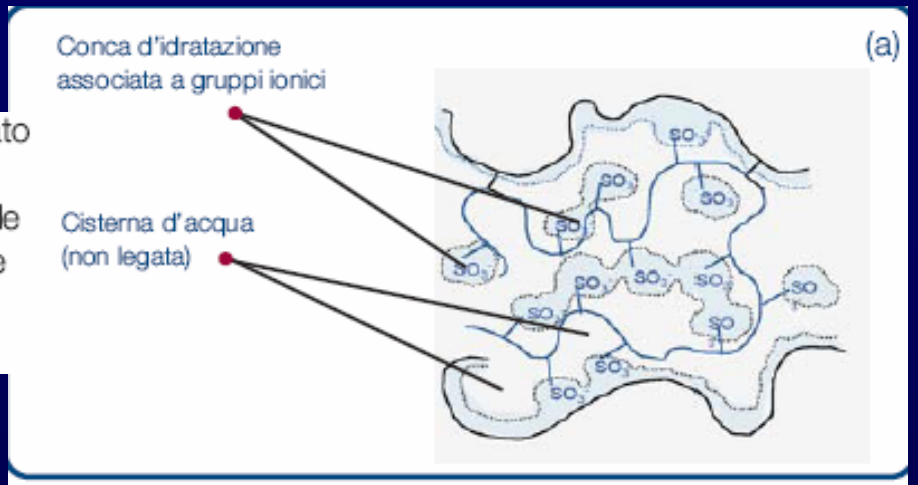
DC BEAD

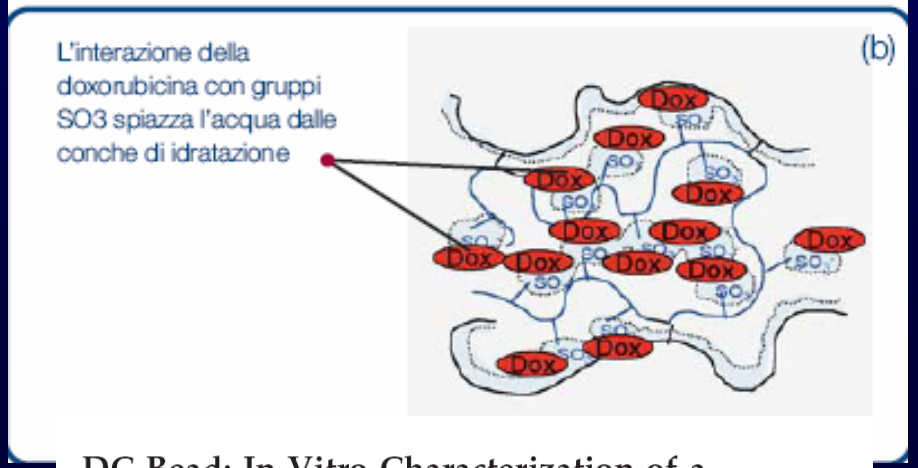
- *Microsfere a rilascio di farmaco,a bassa compressività in grado di essere caricate con chemioterapici a dosi elevate, che rilasciano poi in maniera controllata.*
- *Approvate con il marchio CE*
- *Nuovo polimero idrogel, sulfonato-modificato, con tecnologia N-Fil*
- *Colorate di blue*
- *Disponibili in una gamma di misure:*
  - *100-300µm*
  - *300-500µm*
  - *500-700µm*

Drug Eluting Beads

Le microsfere sono composte da un idrogel sulfonato-modificato e sono cariche negativamente, mentre i farmaci, che hanno un'ammina che è protonata quando il farmaco è in forma di sale cloridrato, hanno una carica complessiva positiva. L'interazione elettrostatica tra le specie a carica opposta è il meccanismo di caricamento delle DC Bead.







DC Bead: In Vitro Characterization of a Drug-delivery Device for Transarterial Chemoembolization

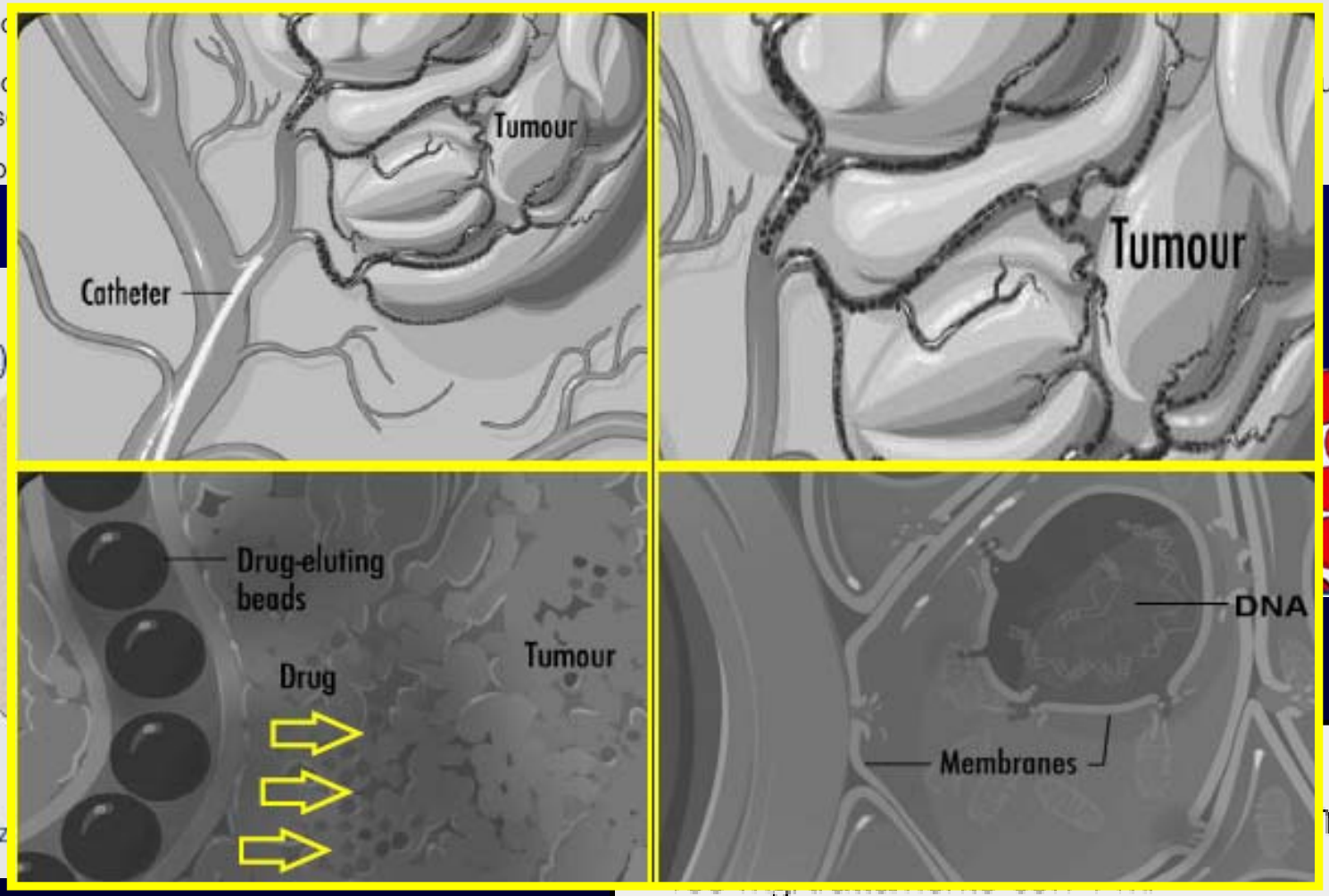
Andrew L. Lewis, PhD, M. Victoria Gonzalez, Andrew W. Lloyd, PhD, Brenda Hall, PhD, Yiqing Tang, PhD, Sean L. Willis, PhD, Simon W. Leppard, DPhil, Laura C. Wolfenden, Rosemary R. Palmer, and Peter W. Stratford, PhD

Drug Eluting Beads

Concetto delle microsfere a rilascio di farmaco

- Le mic
- Le mic
  diver
- Il vaso

umorali per



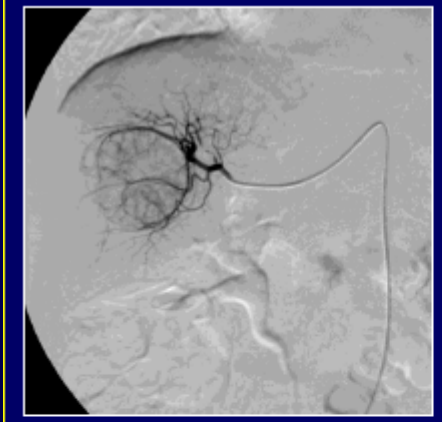
(a)

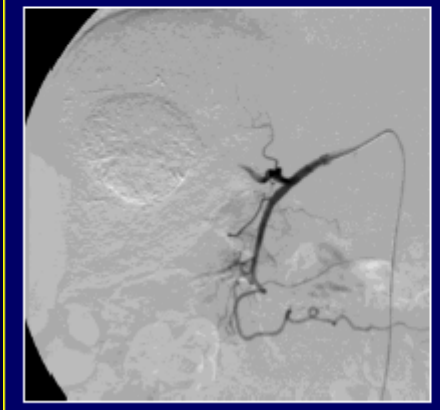
Fig 1. Az

mg/ml e di

DEBDOX HCC

TACE con Lipiodol VS DEBDOX TACE





Nonselective treatment of the entire liver parenchyma

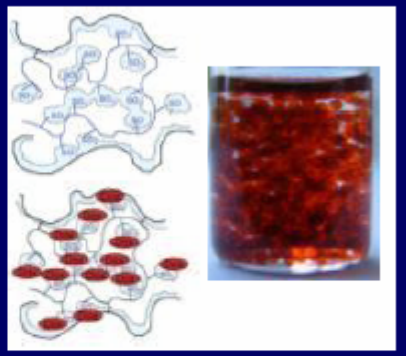
Selective treatment

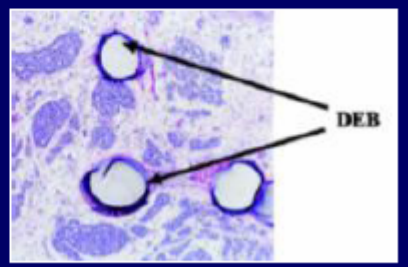
(segmental approaches with microcatheters)

"Homemade" drug-in-oil emulsions and embolic agents

Drug-eluting bead

(calibrated embolic microsphere)

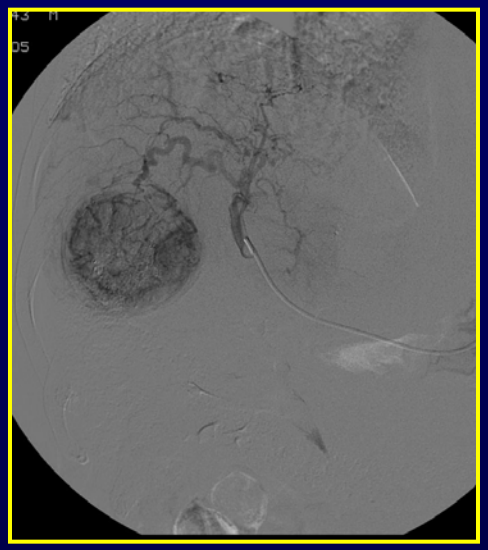


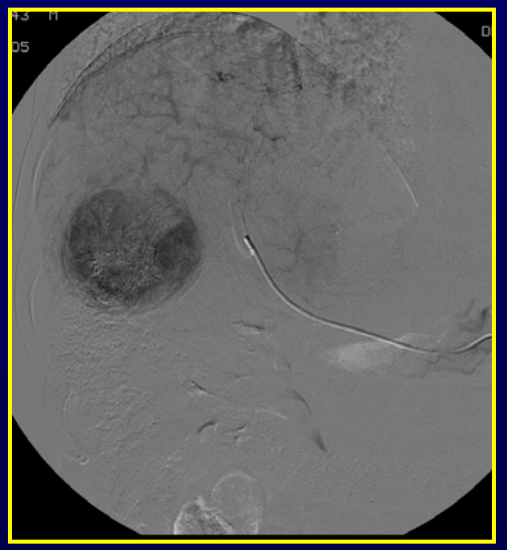


Lencioni R. Personal communication.
Hong K, et al. Clin Cancer Res. 2006;12:2563-7.
Available at: www.biocompatibles.com. Last accessed September 2010.

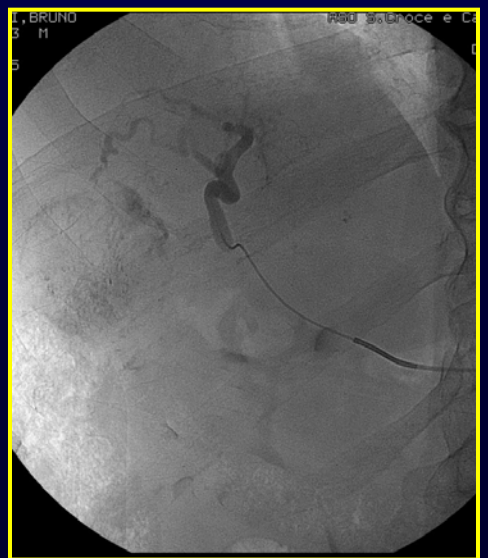
DEBDOX HCC

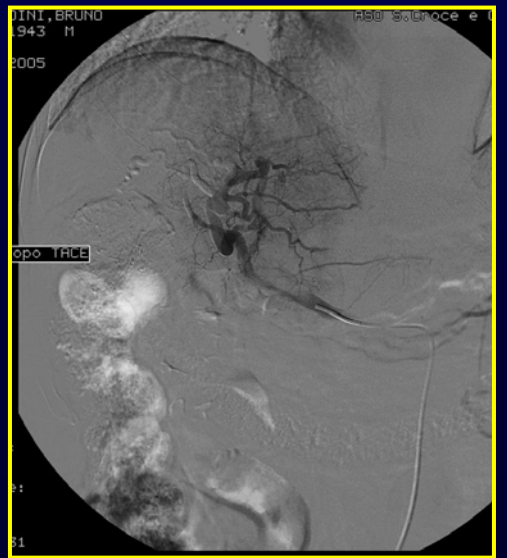
Somministrazione del farmaco





- Viene utilizzato un approccio superselettivo (cioè, segmentale o subsegmentale).
- Per la cateterizzazione superselettiva è mandatorio l'uso di un microcatetere.

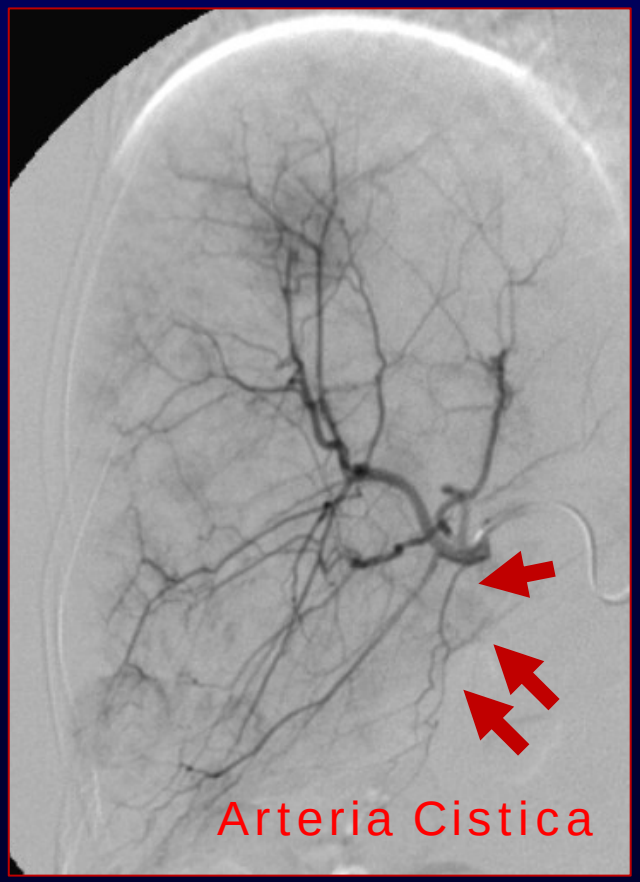


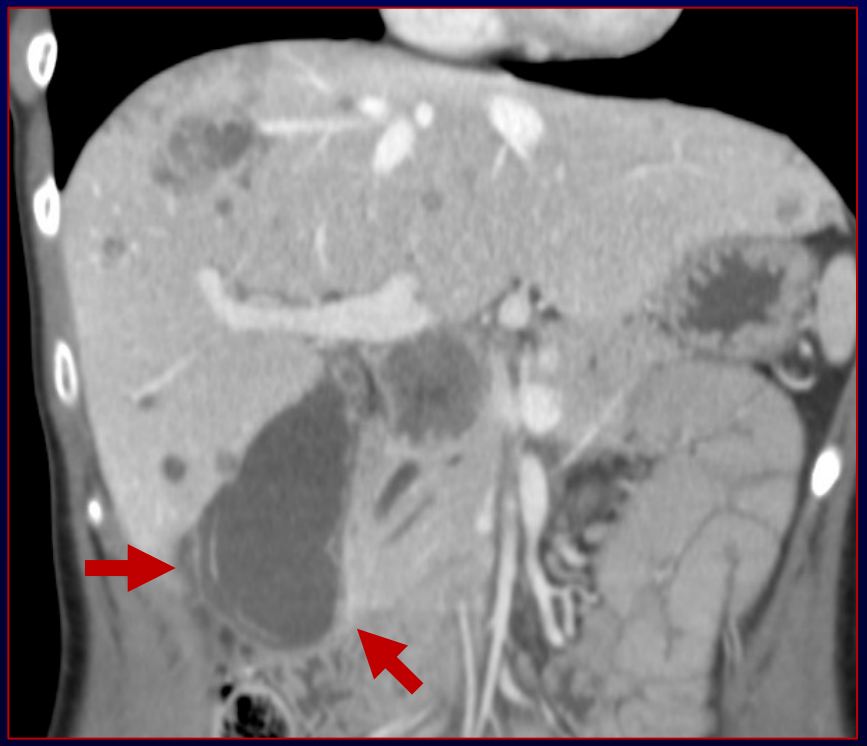


DEBDOX HCC

Somministrazione del farmaco

Prestare attenzione all’identificazione dell’ origine dell'arteria cistica e di quella pancreatica!

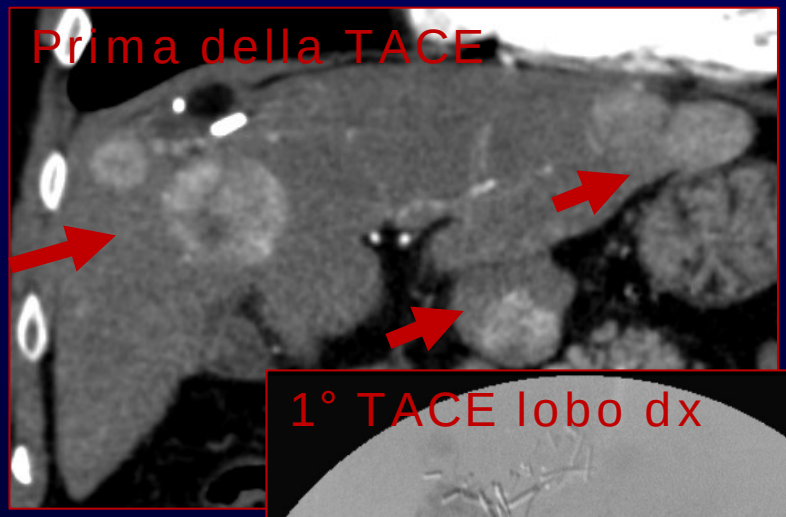


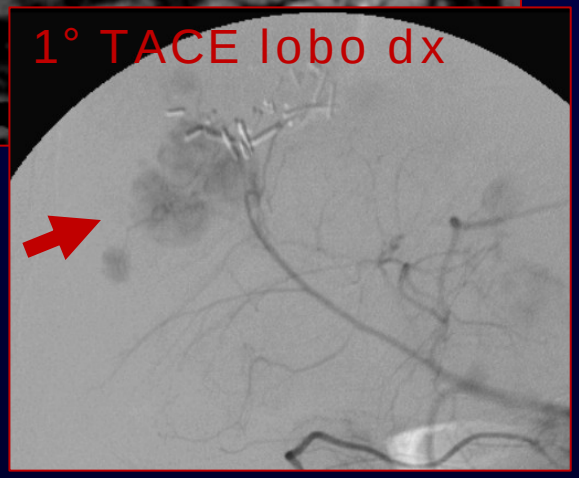


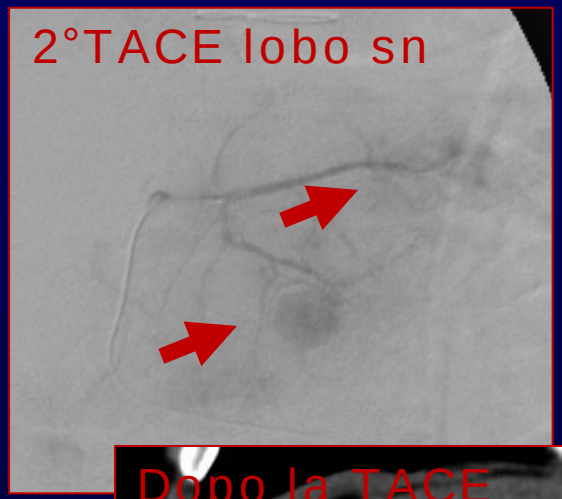
DEBDOX HCC

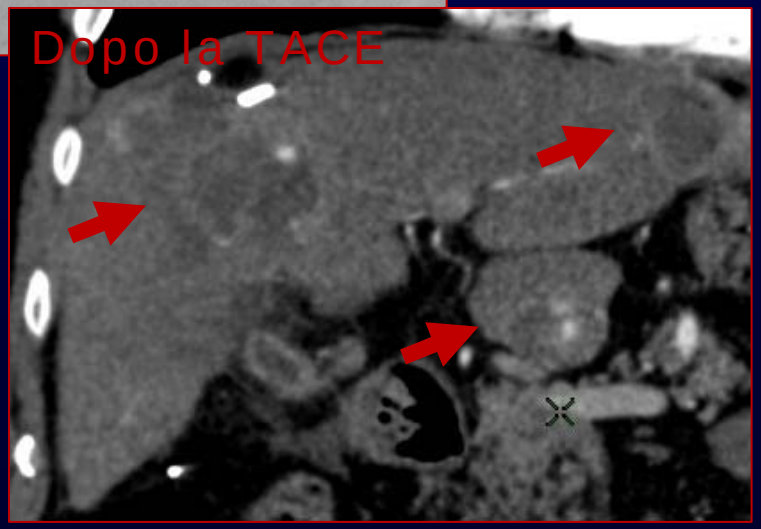
Tumori Bilobari

Nei tumori bilobari, entrambi i lobi epatici devono essere trattati in sedute distinte (4 settimane).









DEBDOX HCC

Farmaci Peri-Procedurali

I farmaci per il dolore devono essere somministrati secondo il protocollo ospedaliero.
La profilassi antibiotica e la protezione gastrica devono essere somministrate dal giorno 0 al giorno 5.

TACE: effetti collaterali

"sindrome post-embolizzazione"

dolore addominale, febbre, nausea e moderato incremento delle transaminasi

TACE: controindicazioni

- **Sostituzione parenchimale > 50%**
- **LDH > 425 iu/L**
- **AST > 100 iu/L**
- **Bilirubina > 3 mg/dL**
- **Ittero ostruttivo**
- **Encefalopatia**
- **Trombosi portale**
- **Shunt AV**

TACE: risultati

- L’efficacia in termini di necrosi tumorale è stata dimostrata in molti studi, con una significativa variabilità (60-100%)

- Efficace in termini di qualità di vita

- E’ efficace in termini di **sopravvivenza**?

Chemioembolizzazione
Primo Paradosso

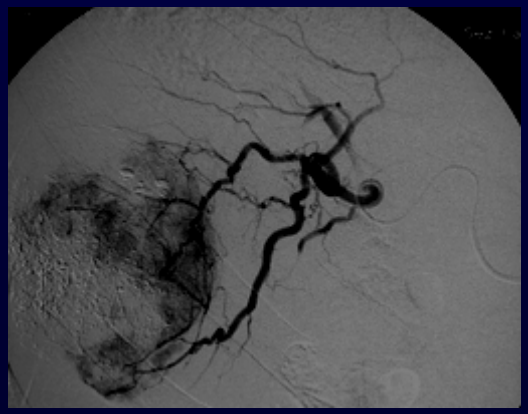
- La chemioembolizzazione (TransArterialChemoEmbolization:TACE) è di gran lunga la *tecnica più impiegata* nel trattamento dell'epatocarcinoma non resecabile
- L'efficacia sulla sopravvivenza non è chiara
- Il reale **meccanismo d'azione** rimane sconosciuto e pertanto non vi è consenso su quale sia la tecnica di TACE più efficace

Ramsey JVIR 2002

Secondo Paradosso della chemioembolizzazione

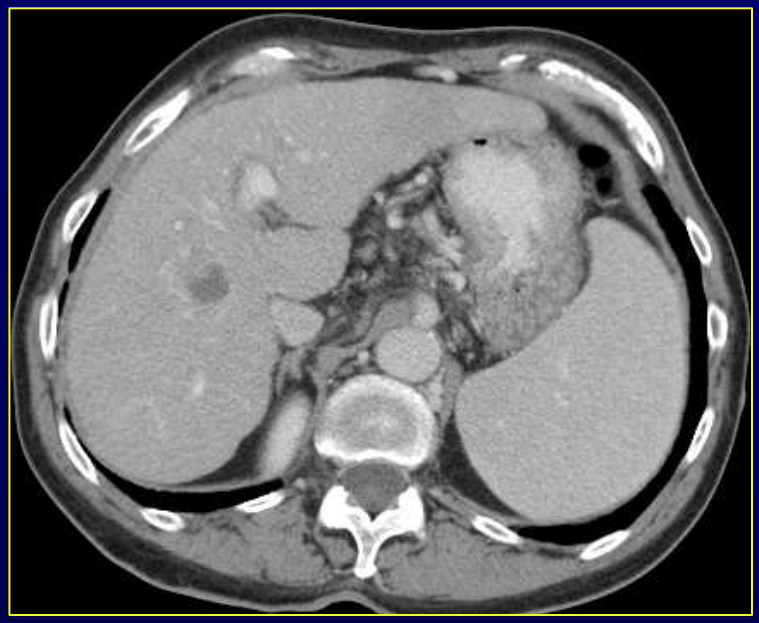
- Più *piccolo* è il nodulo, maggiore è l'efficacia, maggiore è il costo (microcateteri), maggiore è la difficoltà (TACE superselettiva) …..minore è l'indicazione!

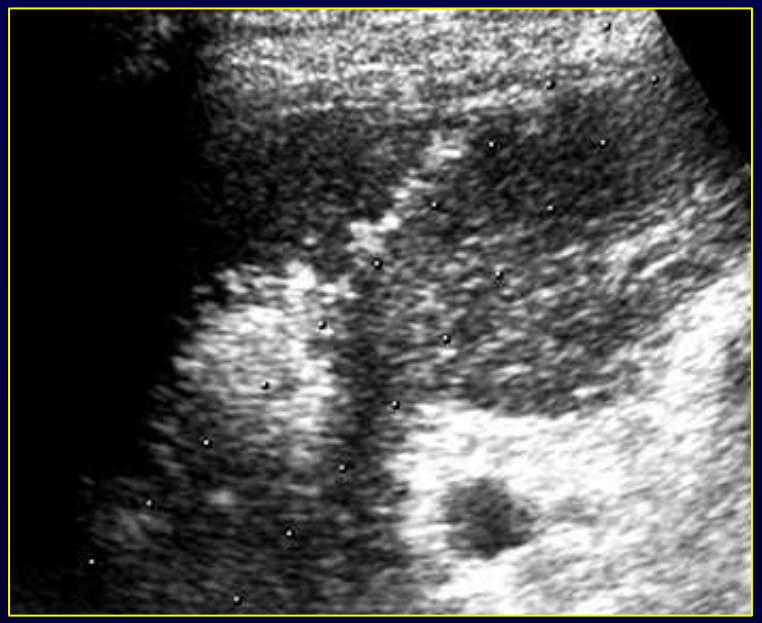
Radiofrequenza



pTACE: risultati

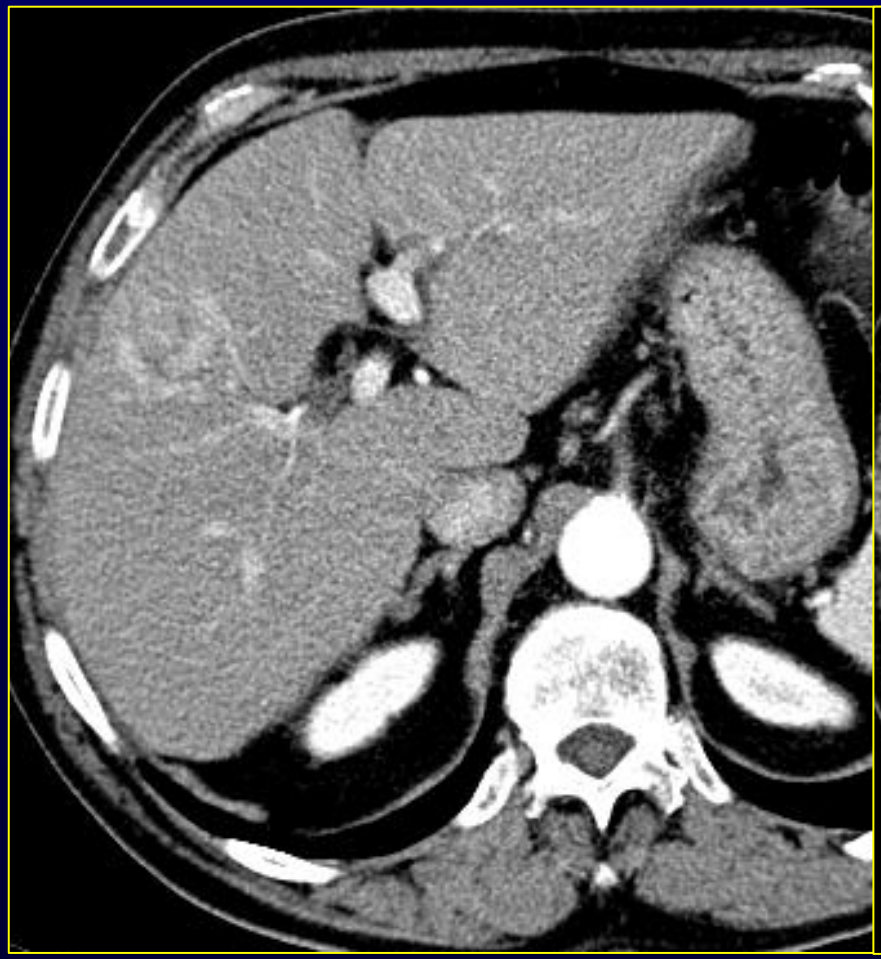
TC dopo 1 mese: significativa riduzione di volume ma necrosi incompleta.



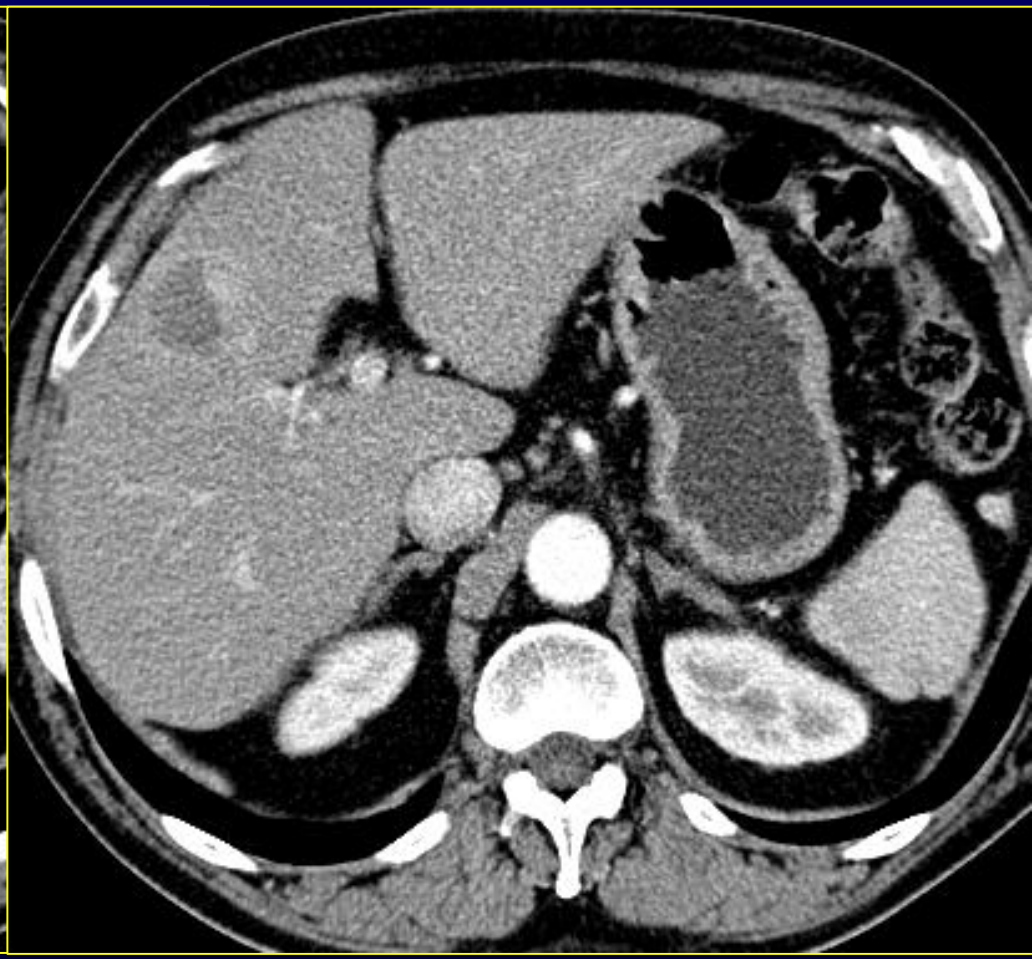


RF applicata per completare il trattamento

Terapia combinata

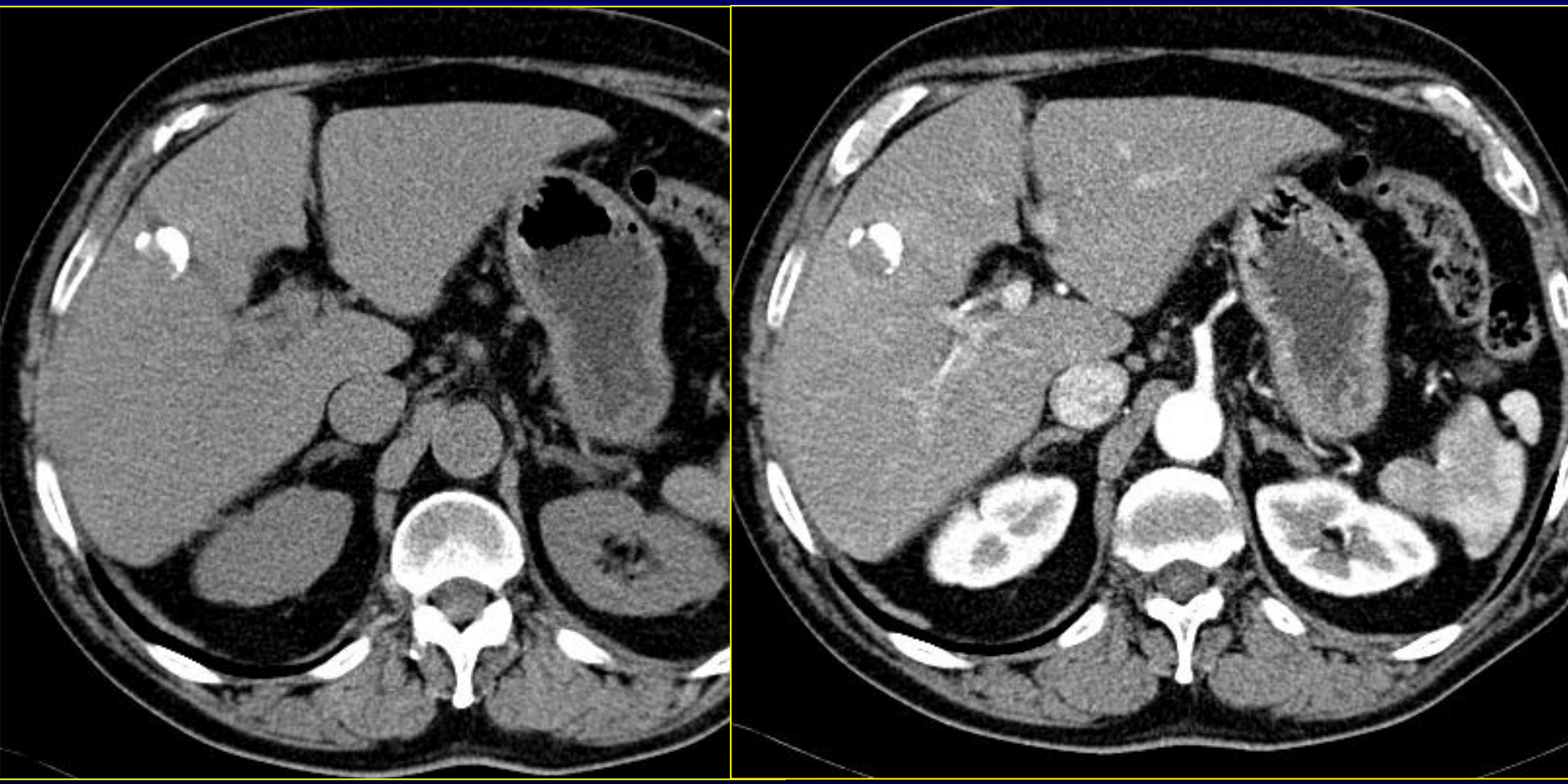


HCC pre-RF



HCC post-RF

Terapia combinata



“the combined use of transcatheter treatment and tumor ablation techniques is very popular in the treatment of HCC tumors of intermediate (3-7 cm) size...”

“TACE followed by RFA is used to minimize heat loss due to perfusion-mediated tissue cooling...”

“TACE with drug eluting beads is performed after an RFA procedure to increase tumor necrosis by exposing the peripheral part of the tumor, where only sublethal temperatures may be achieved in a standard RFA treatment, to high drug concentration”

R. Lencioni et al. Hepatology 2010

Hepatol Res. 2013 Feb 25. doi: 10.1111/hepr.12100. [Epub ahead of print]

Radiofrequency ablation combined with transarterial chemoembolization for intermediate hepatocellular carcinoma.

Tanaka M, Ando E, Simose S, Hori M, Kuraoka K, Ohno M, Yutani S, Harada K, Sata M.

Department of Internal Medicine, Yokokura Hospital.

Abstract

AIM: Radiofrequency ablation therapy (RFA) combined with transarterial chemoembolization (**TACE**) (combination therapy) is effective for early-stage hepatocellular carcinoma (**HCC**). The aim of this study was to compare the long-term effects of combination therapy with supportive care alone for intermediate **HCC**.

METHODS: The study included 58 patients with intermediate **HCC** who received combination therapy (n = 34) or supportive care alone (n = 24). The inclusion criteria were a single nodule of more than 50 mm in diameter or two to three nodules, each measuring more than 30 mm in diameter, or more than three nodules, no vascular invasion and no extrahepatic metastasis.

RESULTS: The overall survival rates at 1, 2, 3 and 5 years of the combination therapy group (91%, 65%, 53% and 27%, respectively) were significantly better (P < 0.0001) than those of the supportive care group (42%, 8%, 8% and 0%, respectively). Multivariate analysis identified treatment modality (combination therapy vs supportive care alone: P < 0.0001, risk ratio [RR] = 4.290 [95% confidence interval [CI] = 2.157-8.529]) and serum α-fetoprotein (P = 0.017, RR = 2.318 [95% CI = 1.166-4.610]) as independent and significant factors of overall survival.

CONCLUSION: The combination of **TACE** and RFA is a safe and effective therapy in patients with intermediate **HCC**.

Zhonghua Yi Xue Za Zhi. 2013 Apr 2;93(13):987-91.

[The analysis of the efficacy and safety of combined transarterial chemoembolization with sorafenib in patients with large hepatocellular carcinoma].

[Article in Chinese]

Zhang YQ, Yang JY, Wang Y, Huang YH, Fan WZ, Li JP.

Department of Interventional Oncology, the First Affiliated Hospital of Sun Yat-sen University, Guangzhou 510080, China.

Abstract

OBJECTIVE: To evaluate the efficacy and safety of combined transarterial chemoembolization with sorafenib in patients with large hepatocellular carcinoma.

METHODS: 79 patients with large **HCC**(larger than 10 cm in diameter)were enrolled from July 2008 to June 2012 for this retrospective study. 24 patients undertaken **TACE** combined with sorafenib as T + S group. 35 patients undertaken **TACE** alone as T group, and other 20 patients treated with sorafenib alone as S group.

RESULTS: The median survival time was 15 months in T + S group, 10 months in T group, and 5 months in S group, respectively (P = 0.000). The median time of tumor progress was 6 months, 3 months and 2.5 months, respectively (P = 0.000). The most common adverse events related to sorafenib in group T + S group and S group alone were hand foot skin reaction, diarrhea and alopecia. The incidence rate of adverse events related to sorafenib was no significant difference between two groups. There was no 4 or more grade adverse event occurred in each group. The most common complications related to interventional treatment in group T + S group and T group alone were mild jaundice, ascites, inguinal region hematoma. The incidence rate of complications related to interventional treatment was no significant difference between two groups.

CONCLUSION: The combination of **TACE** and sorafenib in patients with large **HCC** is well tolerated and safe, which is available to delay tumor progression and prolong survival.

PMID: 23886261 [PubMed - in process]

DEBDOX HCC

Imaging follow-up dopo TACE

La risposta dovrebbe essere valutata con TC o RM a 1 mese dal trattamento secondo i criteri mRECIST per l'HCC. *

Risposta Completa

TC ogni
3,6,12 mesi

Risposta Parziale

Pianificare
un ulteriore
trattamento

* Lencioni R, Llovet JM, Semin Liver Dis 2010;30:52-60*DC Bead in HCC: Development of Procedural Standards and Technical Recommendations*

RECIST E mRECIST (RECIST MODIFICATO) PER HCC*

	RECIST	mRECIST
CR	Scomparsa di tutte le lesioni target	Scomparsa di ogni *enhancement* arterioso intratumorale in tutte le lesioni target
PR	Riduzione ≥30% della somma dei diametri delle lesioni target *(riferimento: somma dei diametri al baseline)*	Riduzione ≥30% della somma dei diametri delle lesioni target che presentano *enhancement*
SD	Ogni caso non allocabile in PR o PD	Ogni caso non allocabile in PR o PD
PD	Incremento ≥20% della somma dei diametri delle lesioni target *(riferimento: il più piccolo diametro al baseline)*	Incremento ≥20% della somma dei diametri delle lesioni target che presentino *enhancement*

*Response Evaluation Criteria in Solid Tumors
CR=Complete Response, PR=Partial Response, SD=Stable Disease, PD=Progressive Disease

Eur J Radiol. 2013 Sep;82(9):1471-80. doi: 10.1016/j.ejrad.2013.04.045. Epub 2013 Jun 13.

Use of contrast-enhanced ultrasonography with a perflubutane-based contrast agent performed one day after transarterial chemoembolization for the early assessment of residual viable hepatocellular carcinoma.

Takizawa K, Numata K, Morimoto M, Kondo M, Nozaki A, Moriya S, Ishii T, Oshima T, Fukuda H, Okada M, Takebayashi S, Maeda S, Tanaka K.

Gastroenterological Center, Yokohama City University Medical Center, 4-57 Urafune-cho, Minami-ku, Yokohama, Kanagawa 232-0024, Japan.

Abstract

OBJECTIVE: We evaluated the efficacy of contrast-enhanced ultrasonography (US), compared with contrast-enhanced computed tomography (CT), for early assessments after transarterial chemoembolization (**TACE**) for the treatment of hypervascular hepatocellular carcinoma (**HCC**) lesions.

SUBJECTS AND METHODS: Thirty-two patients with 59 **HCC** lesions who were scheduled to receive **TACE** were enrolled in this prospective study. **TACE** was performed by injecting a mixture of iodized oil and miriplatin hydrate, followed by a gelatin sponge. Digital subtraction angiography (DSA) and/or contrast-enhanced CT were performed 2-6 months after **TACE** and were used as the reference standard for residual **HCC**; the detection rates for residual viable **HCC** using contrast-enhanced US with a perflubutane-based contrast agent and a high mechanical index (MI) mode performed one day after **TACE** were also compared with those obtained using contrast-enhanced CT performed one month after **TACE**. The comparisons were made using the McNemar test.

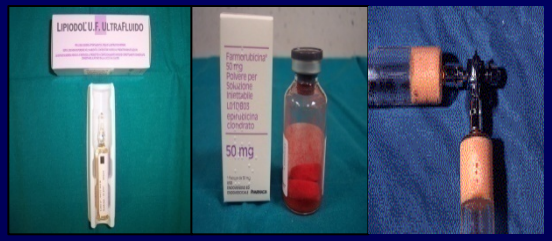
RESULTS: Forty-seven (79.7%) of the 59 **HCC** lesions were diagnosed as having residual viability based on DSA and contrast-enhanced CT findings obtained 2-6 months after **TACE**. Eight (17.0%) of the 47 **HCC** lesions that were diagnosed as having residual viability using one-day contrast-enhanced US were not detected using one-month contrast-enhanced CT because of artifacts produced by the high attenuation of the iodized oil. The detection rate for residual **HCC** lesions using one-day contrast-enhanced US (95.7%, 45/47) was significantly higher than that using one-month contrast-enhanced CT (78.7%, 37/47) ($P<0.05$).

CONCLUSION: Contrast-enhanced US performed one day after **TACE** is more sensitive than contrast-enhanced CT performed one month after **TACE** for detecting residual viable **HCC**.

Y90 Radioembolizzazione

- Le microsfere di Y90 sono particelle di 20-40 μm che emettono **radiazioni β**, distribuite mediante l'arteria epatica
- L'algoritmo di trattamento è analogo a quello seguito per la TACE

- **TACE convenzionale → 300-700 µm**

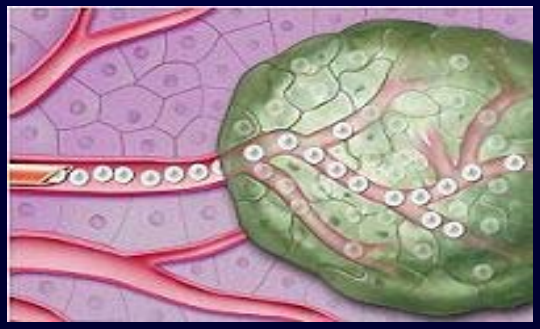


- **DEB-TACE → 100-700 µm**

- **Microsfere radioattive → 20-40µm**

SIRT (Selective internal radiation therapy): **Razionale**

- Somministrazione locale intra-arteriosa di microsfere caricate con Ittrio 90.
- Isotopo che emette raggi beta puri di alta energia senza emissioni di raggi gamma primari.
- Energia media è di 0.9367 MeV.
- Il percorso di questi raggi nei tessuti è mediamente di 2,5 mm (massimo 11 mm).
- **Massima azione a livello della massa tumorale, bassa esposizione dei tessuti vicini.**

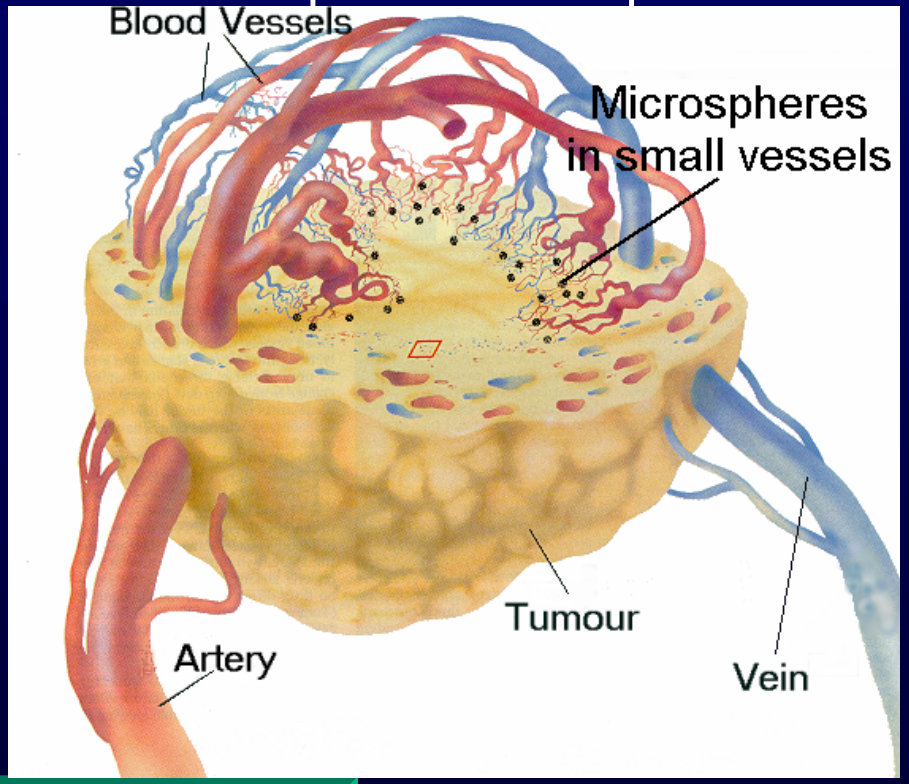


Maggiore concentrazione delle microsfere radioisotopiche nelle sedi coinvolte da malattia.

Razionale Radioembolizzazione

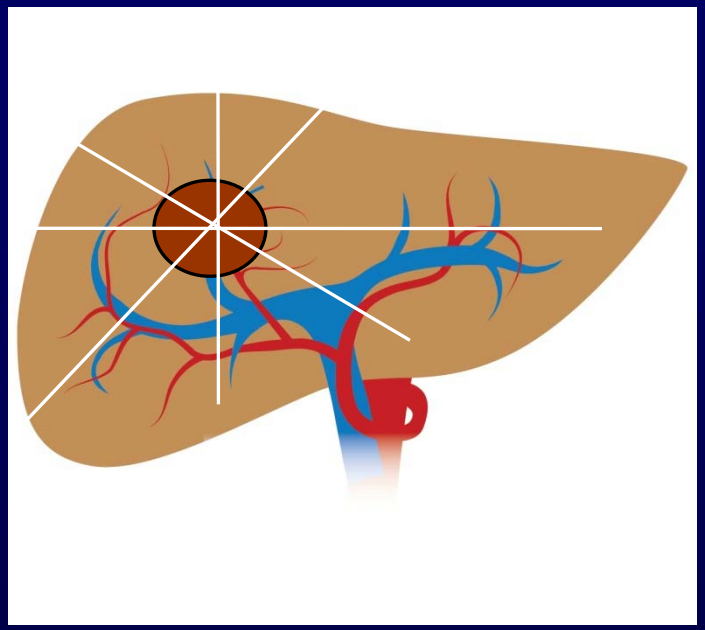
veicoli adatti alla distribuzione selettiva di dosi molto elevate di radiazioni al tumore, mentre l'esposizione alle radiazioni del parenchima epatico normale rimane entro limiti tollerabili

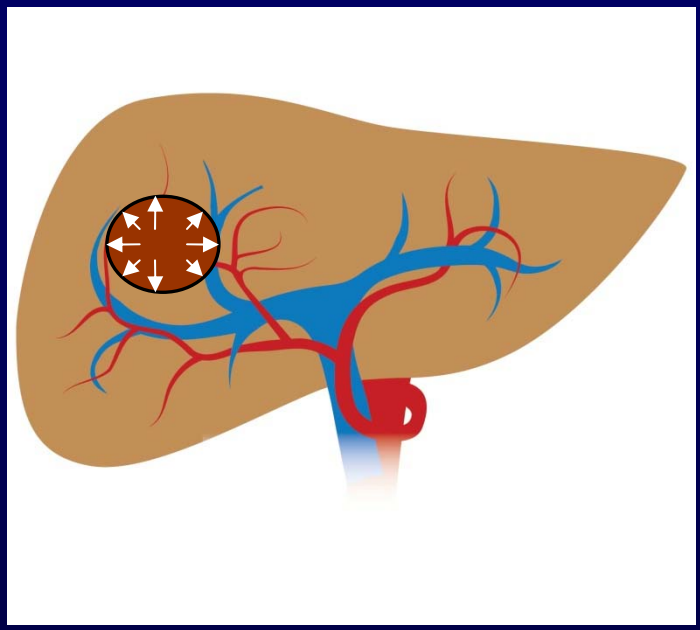
Microsfere: 20-40 µm



- Diametro dei vasi tumorali di 25 µm-75 µm
- Diametro delle arteriole terminali di 8-20 µm

Radiazione Interna: Radiation from the “Inside-Out”





Le microsfere di Y90, a differenza delle sorgenti di radiazioni a fascio esterno, sono fonti di radiazioni che si localizzano preferenzialmente nel sistema vascolare peri- ed intra-tumorale:

- **Applicazione selettiva alla fonte di radiazione: alta dose al tessuto bersaglio**
- **Minima irradiazione non-target**
- **Bassa esposizione agli organi e alle strutture adiacenti**

Campbell AM et al. Analysis of the distribution of intra-arterial microspheres in human liver following hepatic yttrium-90 microsphere therapy. Phys Med Biol 2000;45:1023–1033.

SIRT (Selective internal radiation therapy): **Indicazioni**

- Attualmente sono disponibili due tipologie di microsfere:
- **TheraSphere® (Nordion),** microsfere di vetro; nelle linee guida della FDA indicate nelle **neoplasie primitive epatiche non resecabili**.
- **SIR-Spheres® (Sirtex),** microsfere di resina; nelle linee guida della FDA indicate nelle **metastasi (da tumori del colon, neuroendocrini, della mammella)**.
- In Europa notevole sovrapposizione nelle applicazioni.

Characteristic	Glass Microsphere Device	Resin Microsphere Device
Number of spheres per dose		
Range	$3–8 \times 10^6$	$30–60 \times 10^6$
Mean	4×10^6	50×10^6
Specific gravity	High	Low
Specific activity (Bq per sphere)	2500	50
Institutional review board oversight	Required	Not required
FDA approval category	Humanitarian device exemption	Premarket approval
Dose variation with tumor volume	No	Yes
Hepatopulmonary shunt upper limit (%)	10	20
Solution used for suspension of spheres	Normal saline	Sterile water
Adjuvant chemotherapy	No	Yes

SIRT (Selective internal radiation therapy): **Controindicazioni**

- **Controindicazioni assolute**:
- Elevato shunting epato-polmonare
- Reflussi patologici scintigrafici nel territorio gastro-intestinale

- **Controindicazioni relative**:
- Precedente radioterapia tradizionale stereotassica
- Ascite, elevata bilirubinemia (riserva epatica ridotta)

- La trombosi della vena porta è una controindicazione all'applicazione delle **SIR-Spheres®**, ma non nel caso delle **TheraSphere®.**

- Salem R, Lewandowski R, Roberts C, et al. Use of yttrium-90 glass microspheres (TheraSphere) for the treatment of unresectable hepatocellular carcinoma in patients with portal vein thrombosis. J Vasc Interv Radiol 2004;15:335–345.

Flow-chart

Azienda Ospedaliero-Universitaria di Bologna Policlinico S. Orsola - Malpighi

SELEZIONE CANDIDATI
(working team)

FASE 1:
PREPARAZIONE

TC spirale per volumetria epatica e % fegato coinvolto vs. fegato sano + **TC-PET**

- 1° angiografia : valutazione varianti anatomiche ed eventuale loro embolizzazione (GDA RGA o altre). Posizionamento catetere in sede idonea
- trasferimento a MN per studio scintigrafico MAA per shunt epato-polmonari
- ritorno in sala angio per
  - Se shunt + → rimozione catetere o terapia intravascolare alternativa
  - Se shunt - → rimozione catetere

eligibilità

Ordine Microsfere Ittrio
ed appuntamento per trattamento a 15-30 gg.

Arrivo Ittrio

Calibrazione Ittrio e dosimetria

FASE 2:
ESECUZIONE

Studio angiografico e posizionamento catetere→ TRATTAMENTO Y90

Scintigrafia di controllo dopo l'infusione

degenza 1-2 gg presso Ter. Radiometabolica e poi Reparto di provenienza

Follow-up TC /PET , laboratorio

Effetti Collaterali

- **Molto precoci (ore):** dolore, nausea

  40-60%, a causa dell'ischemia?

- **Precoci (giorni):** dolore, nausea, alterata funzionalità epatica

  estremamente raro

- **Tardivi (settimane): a**ffaticamento, anoressia

  frequenti, ma blandi

SIRT (Selective internal radiation therapy): **Complicanze**

- **pancitopenia da soppressione midollare** (diffusione delle microsfere nel circolo sistemico)
- **polmonite attinica** (eccessivo shunting epato-polmonare)
- **colecistite** (passaggio di microsfere nell'arteria cistica)
- **ulcera gastrica e duodenale**, per passaggio delle microsfere attraverso ramificazioni arteriose viscerali extraepatiche ed impianto delle stesse nella parete di questi organi.
- **epatopatia** ed insufficienza epatica da radiazioni
- **…. Costi!**

Cardiovasc Intervent Radiol. 2013 Jun;36(3):714-23. doi: 10.1007/s00270-012-0481-2. Epub 2012 Oct 24.

Efficacy and safety of transarterial radioembolization versus chemoembolization in patients with hepatocellular carcinoma.

Moreno-Luna LE, Yang JD, Sanchez W, Paz-Fumagalli R, Harnois DM, Mettler TA, Gansen DN, de Groen PC, Lazaridis KN, Narayanan Menon KV, Larusso NF, Alberts SR, Gores GJ, Fleming CJ, Slettedahl SW, Harmsen WS, Therneau TM, Wiseman GA, Andrews JC, Roberts LR.

Division of Gastroenterology and Hepatology, College of Medicine, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA. morenoluna.laura@gmail.com

Abstract

PURPOSE: Intermediate-stage hepatocellular carcinoma (**HCC**) is usually treated with locoregional therapy using transarterial chemoembolization (**TACE**). Transarterial radioembolization (TARE) using β-emitting yttrium-90 integral to the glass matrix of the microspheres is an alternative to **TACE**. This retrospective case-control study compared the outcomes and safety of TARE versus **TACE** in patients with unresectable **HCC**.

MATERIALS AND METHODS: Patients with unresectable **HCC** without portal vein thrombosis treated with TARE between 2005 and 2008 (n = 61) were retrospectively frequency-matched by age, sex, and liver dysfunction with **TACE**-treated patients (n = 55) in the Mayo Clinic Hepatobiliary Neoplasia Registry. Imaging studies were reviewed, and clinical and safety outcomes were abstracted from the medical records.

RESULTS: Complete tumor response was more common after TARE (12 %) than after **TACE** (4 %) (p = 0.17). When complete response was combined with partial response and stable disease, there was no difference between TARE and **TACE**. Median survival did not differ between the two groups (15.0 months for TARE and 14.4 months for **TACE**; p = 0.47). Two-year survival rates were 30 % for TARE and 24 % for **TACE**. TARE patients received fewer treatments (p < 0.001). Fifty-nine (97 %) TARE patients received outpatient treatment. In contrast, 53 (98 %) **TACE** patients were hospitalized for ≥1 day (p < 0.001). Compared with **TACE**, TARE was more likely to induce fatigue (p = 0.003) but less likely to cause fever (p = 0.02).

CONCLUSION: There was no significant difference in efficacy between TARE and **TACE**. TARE patients reported more fatigue but had less fever than **TACE** patients. Treatment with TARE required less hospitalization than treatment with **TACE**. These findings require confirmation in randomized trials.

PMID: 23093355 [PubMed - in process] PMCID: PMC3594060 [Available on 2014/6/1]

Cardiovasc Intervent Radiol. 2013 May 30. [Epub ahead of print]

Trends in Utilization of Transarterial Treatments for Hepatocellular Carcinoma: Results of a Survey by the Italian Society of Interventional Radiology.

Bargellini I, Florio F, Golfieri R, Grosso M, Lauretti DL, Cioni R.

Diagnostic and Interventional Radiology, Pisa University Hospital, Via Paradisa 2, 56100, Pisa, Italy, irenebargellini@hotmail.com.

Abstract

PURPOSE: This study was designed to provide an overview of the practice of locoregional treatments for **HCC** by the Italian centers of Interventional Radiology (IR) with particular reference to transarterial modalities.

METHODS: A questionnaire of 11 questions on locoregional treatment of **HCC** was e-mailed to 134 Italian IR centers.

RESULTS: The response rate was 64.9 % (87/135 centers). Of 8,959 procedures in 2011, 67 % were transarterial treatments, 31 % percutaneous ablations, and 2 % Y90-radioembolizations. Regarding (chemo)embolization, approximately 59 % of procedures were performed in the intermediate stage, 28 % in the early stage, and 12.8 % in the advanced stage. **TACE** techniques varied greatly; approximately 52 % of procedures were performed with drug-eluting particles and 32 % with lipiodol, drug, and reabsorbable particles. In selected cases, 53 of 78 (68 %) centers combine chemoembolization and ablation, whereas 28 centers (35.9 %) combine Sorafenib and chemoembolization. In 2011, 13 of 78 (16.7 %) responding centers performed Y90-radioembolization, with approximately 52 % of procedures performed in the advanced stage and 46 % in the intermediate stage. Approximately 62 % of Y90-radioembolizations were performed using resin spheres and 38 % using glass spheres.

CONCLUSIONS: With almost 9,000 procedures performed each year, locoregional treatments of **HCC**, most of all transarterial (chemo)embolizations, represent a major part of daily clinical practice in many Italian IR centers. The high variability in responses regarding transarterial treatments for **HCC** patients highlights the need for solid scientific evidence allowing better definition of clinical indications and standardization of technical approaches.

PMID: 23719667 [PubMed - as supplied by publisher]


GUIDA
POCO
che
DEVI
BERE