CYTECARE
CANCER HOSPITALS

Treating hepatic tumours has never been so **precise.**

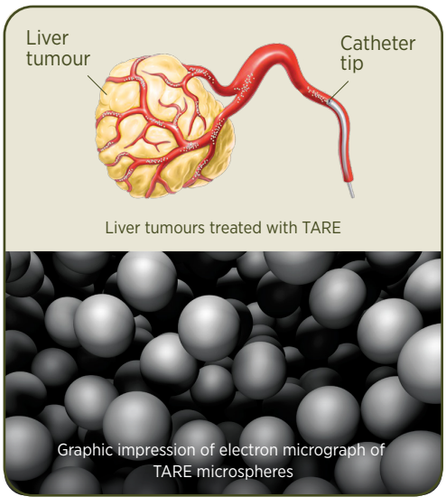
#FightingCancerTheRightWay

Trans Arterial Radio Embolisation (TARE)

The advanced targeted radiation therapy

A procedure that selectively delivers the radioactive microspheres to the tumour vasculature, using commercially available products such as radioactive 90Y-resin/glass microspheres.[1]

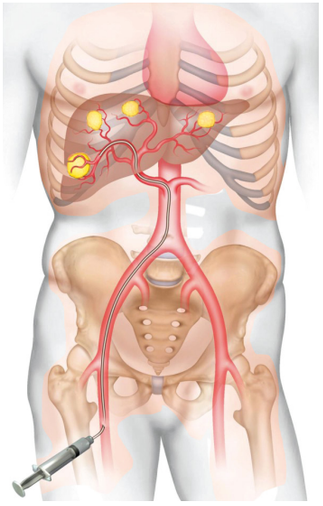
- TARE, often known as Selective Internal Radiation Therapy (SIRT),[1] is a promising therapeutic approach for patients with Hepatocellular Carcinoma (HCC). A high radiation dose is directly delivered to target tumours within the liver, sparing the parenchyma.[2,3]
- Evidence indicates that TARE is safe and effective with a better toxicity profile compared to chemoembolisation.[3]
- TARE is indicated for patients with unresectable, intermediate stage HCC, with a life expectancy of >3 months.[3-5]



The Procedure at Cytecare

Patient selection

A highly skilled, multidisciplinary team of medical professionals work towards the selection of patients, who meet the eligibility criteria for TARE.[3]



The 3-step process

Pre-treatment angiography[4]

- To detect the vascular anatomy and tumour feeding vessels.
- To evaluate extrahepatic flow and lung shunt fraction.

Therapy administration[4]

- Performed in angiography setting with strict adherence to protocols.
- Predefined dose of radioactive microspheres is injected into the tumour-bearing lobe.

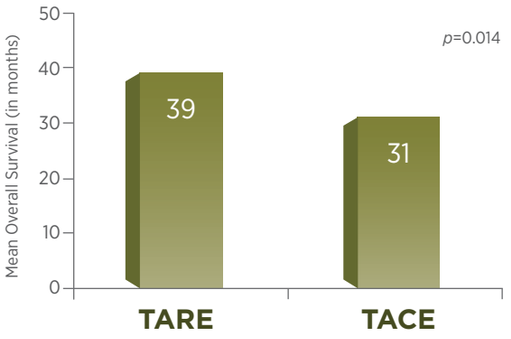
Post-treatment assessment[4]

- Clinical, laboratory, and radiologic follow-ups to monitor tumour response to treatment as well as to identify any toxicity.

Clinical Benefits of TARE

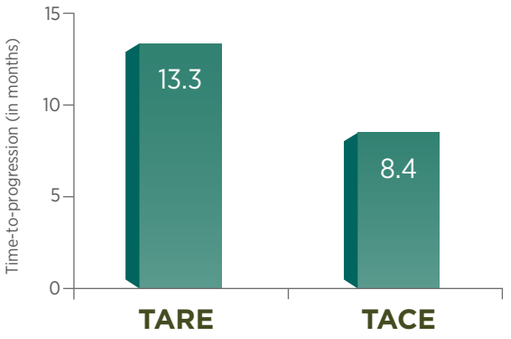
- It helps in down-staging the tumour and make it amenable for curative options like surgery/transplant.[4]
- It offers an effective and safe treatment option for the treatment of unresectable HCC.[5]

It offers consistent results in terms of **overall survival.**[3]



Results of a retrospective study in BCLC B and C HCC patients (n=80)[5]

It provides longer **time-to-progression.**[6]



Data from 245 patients with HCC [6]

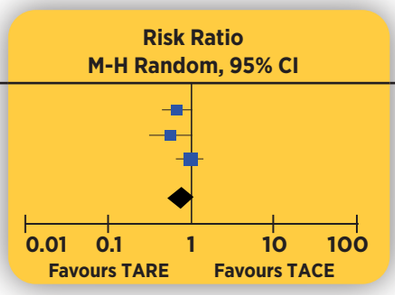
Lower incidence of complications than chemoembolisation.[5]

Incidence of complications: **TARE** vs. **TACE**

	TARE		TACE			Risk Ratio
Study or Subgroup	**Events**	**Total**	**Events**	**Total**	**Weight**	**M.H. Random, 95% CI**
Kooby	12	27	31	44	31.7%	0.63 [0.40, 1.00]
Lance	10	38	17	35	23.0%	0.54 [0.29, 1.02]
Moreno-Luna	40	61	37	55	45.3%	0.97 [0.75, 1.26]
Total (95% CI)		126		134	100.0%	0.74 [0.50, 1.10]
Total events	62		85			

Heterogeneity. Tau² = 0.07; Chi²; = 4.96, df = 2 (P = 0.08); I² = 60%

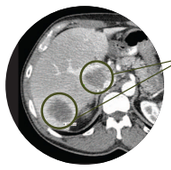
Test for overall effect Z = 1.49 (P = 0.14)



Forest plot of any complications in HCC patients receiving TARE or TACE.

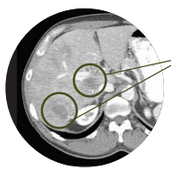
Key Features of TARE

- **Better tolerability and post-treatment quality of life (QoL) than TACE.**[3]
  - More patients treated with TACE experienced abdominal pain and transaminitis (p<0.05)[6]
- **Shorter hospitalisation duration**[7]**, reducing treatment burden.**[3]
  - Predominantly **outpatient procedure,** unlike TACE[8]
  - Fewer hospital visits post procedure[8]



Liver tumours before TARE microspheres treatment

- **Better utility in patients with HCC and PVT.**[2]
  - TARE offers comparable survival to sorafenib therapy, with a fewer severe side-effects
- **Better outcomes in poor-risk advanced inoperable HCC.**[9]
  - Offers response rate of 30.0%, median overall progression-free survival of 3.3 months and overall survival of 13.2 months[9]



Shrinkage of tumours 6 months after TARE microspheres treatment

HCC: Hepatocellular Carcinoma; PVT: Portal Vein Thrombosis; TACE: Transcatheter Arterial Chemoembolisation

Cytecare professional team for TARE

Dr. Sriram Jaganathan
Consultant
Interventional Radiology

MD (Radiology)
FVIR (Interventional Radiology)

Areas of special interest

- Vascular and Non-Vascular Interventional Procedures.
- Hepatobiliary, Gastrointestinal and Genitourinary Interventions.
- Vascular Gynaecological Interventional Procedures including Fibroid Embolisation.

Dr. Sriram Jaganathan completed his MD, Radiology, from the prestigious All India Institute of Medical Sciences (AIIMS), New Delhi. Following the specialization in radiology, he underwent sub-specialization in Vascular and Non-Vascular Interventional Radiological procedures from Singapore General Hospital and University of Ottawa, Canada. He has six years of experience in performing interventional procedures, including vascular and non-vascular, at various multispecialty hospitals in Chennai, Bengaluru, and Kochi, including the GlobalHospitals Group, and Aster Medcity - DM Group of Hospitals. An active member of IRIA (Indian Radiological and Imaging Association) and ISVIR (Indian Society of Vascular and Interventional Radiology), he has published various papers, and is credited with several presentations.

Dr. Mythri Shankar
Sr. Consultant
Nuclear Medicine

MBBS, MD (USA) -
Nuclear Medicine

Areas of special interest

- PET CT and Molecular Imaging.
- Nuclear Cardiology.
- Radio Iodine and other Radio-Isotope Therapies.
- Sentinel Lymph Node Localization.

Dr. Mythri Shankar has trained extensively in Nuclear Medicine from various globally renowned institutions such as UCLA, Cedars-Sinai, Children's Hospital of Los Angeles, and Harvard Medical School. With over 15 years of clinical expertise, Dr. Shankar has enabled the integration of most appropriate protocols while performing sophisticated radioactive injection procedures. She is a member of several international organizations such as the American Society of Nuclear Cardiology and the Society of Nuclear Medicine (USA & India), and is also actively involved in academics and several research projects.

References

1. Mahnken AH. Current status of transarterial radioembolization. World J Radiol. 2016;8(5):449-459.
2. Mosconi C, Cappelli A, Pettinato C, Golfieri R. Radioembolization with Yttrium-90 microspheres in hepatocellular carcinoma: Role and perspectives. World J Hepatol. 2015;7(5):738-752.
3. Kallini JR, Gabr A, Salem R, Lewandowski RJ. Transarterial radioembolization with Yttrium-90 for the treatment of hepatocellular carcinoma. Adv Ther. 2016;33:699-714.
4. Cappelli A, Pettinato C, Golfieri R. Transarterial radioembolization using yttrium-90 microspheres in the treatment of hepatocellular carcinoma: a review on clinical utility and developments. J Hepatocell Carcinoma. 2014;1:163-182.
5. Soydal C, Arslan MF, Kucuk ON, Idilman R, Bilgic S. Comparison of survival, safety, and efficacy after transarterial chemoembolization and radioembolization of Barcelona Clinic Liver Cancer stage B-C hepatocellular cancer patients. Nucl Med Commun. 2016; 37(6):646-649.
6. Salem R, Lewandowski RJ, Kulik L, Wang E, Riaz A, RyuRK, et al. Radioembolization results in longer time-to-progression and reduced toxicity compared with chemoembolization in patients with hepatocellular carcinoma. Gastroenterology. 2011;140(2):497–507.e2.
7. Zhang Y, Li Y, Ji H,Zhao X, Lu H. Transarterial Y90 radioembolization versus chemoembolization for patients with hepatocellular carcinoma: a meta-analysis. BioSci Trends. 2015;9(5):289-298.
8. Kim HC. Radioembolization for the treatment of hepatocellular carcinoma. Clin Mol Hepatol. 2017;23(2):109-114.
9. Lee VHF, Leung DKC, Luk MY, Tong CC, Law MWM, Ng SCY, et al. Yttrium-90 radioembolization for advanced inoperable hepatocellular carcinoma. Onco Targets and Therapy. 2015;8:3457-3464.

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Cytecare Hospitals, Airport Road, Near Bagalur Cross, Yelahanka, Bangalore 560064.
+918022176767 • enquiry@cytecare.com • **www.cytecare.com**