Imaging in Interventional Radiology
ISSN: 2471-8564

Open access Short Communication

Oncologic Interventional Radiology: Advancements in Cancer Treatment

Floriana Nardelli*
Department of Chemical Engineering, University of Birmingham, UK

INTRODUCTION

Oncologic interventional radiology represents a critical component of modern cancer treatment, combining advanced imaging technologies with minimally invasive procedures to diagnose, treat, and manage various cancers. By using imaging modalities like CT scans, ultrasound, and fluoroscopy, interventional radiologists can guide precise procedures to target tumors directly, reducing the need for traditional surgical interventions. These techniques provide significant advantages, including reduced recovery times, minimized trauma to surrounding healthy tissue, and the ability to treat patients who may not be candidates for conventional surgery. This essay will explore the key techniques in oncologic interventional radiology, their applications in cancer treatment, and the benefits and challenges associated with these interventions.

DESCRIPTION

Oncologic interventional radiology involves a range of techniques designed to treat solid tumors, metastases, and other cancer-related complications. Some of the most widely used procedures include. Tumor ablation involves the use of energy to destroy cancerous tissue. Several types of ablation techniques are employed in oncologic IR, RFA uses heat generated by high-frequency radio waves to target and destroy cancer cells. It is typically used for liver tumors, kidney tumors, and lung metastases. The procedure is minimally invasive, with a needle-like probe inserted into the tumor under imaging guidance to deliver the heat directly to the tumor. Similar to RFA, microwave ablation uses microwave energy to heat and destroy tumors. MWA can be more effective than RFA for larger tumors due to its ability to create a larger zone of destruction and to treat tumors with more heterogeneous tissue characteristics. Cryoablation involves freezing the tumor tissue using a cryoprobe, which can also be guided by imaging. It is particularly useful for treating tumors in hard-to-reach areas or when heat-based techniques are less effective. Cryoablation is commonly used for prostate cancer, kidney cancer, and liver tumors. Each of these ablation techniques allows for targeted tumor destruction with minimal invasiveness, offering patients a quicker recovery and lower complication rates compared to traditional surgery. Transarterial therapies are a group of procedures that deliver therapeutic agents directly to the tumor through the blood vessels. These therapies are often used for liver cancer and metastatic cancers that have spread to the liver. Two main types of transarterial therapies. TACE combines the delivery of chemotherapy drugs directly to the tumor with the embolization of blood vessels feeding the tumor. This dual approach cuts off the tumor's blood supply while delivering a high concentration of chemotherapy to the cancerous tissue [1-4]. TACE is commonly used for hepatocellular carcinoma and other liver cancers also known as selective internal radiation therapy (SIRT), TARE involves the infusion of radioactive microspheres directly into the blood vessels supplying the tumor. The radioactive particles emit radiation that selectively targets the tumor, minimizing radiation exposure to healthy tissue. TARE is commonly used for liver cancer and certain metastases.

CONCLUSION

This procedure can provide immediate relief from jaundice and improve quality of life for patients with obstructive jaundice due to pancreatic, bile duct, or liver cancers. In cases where drainage alone is insufficient, a stent (a small tube) can be placed to keep the bile duct open and allow bile to flow freely. Stenting is often used to alleviate symptoms in patients with pancreatic cancer or cholangiocarcinoma. These procedures help manage symptoms and improve patient comfort, particularly in advanced stages of cancer.

ACKNOWLEDGEMENT

None.

Received:	02-September-2024	**Manuscript No:**	IPJIIR-25-22444
Editor assigned:	04-September-2024	**PreQC No:**	IPJIIR-25-22444 (PQ)
Reviewed:	18-September-2024	**QC No:**	IPJIIR-25-22444
Revised:	23-September-2024	**Manuscript No:**	IPJIIR-25-22444 (R)
Published:	30-September-2024	**DOI:**	10.21767/2471-8564.7.2.15

Corresponding author Floriana Nardelli, Department of Chemical Engineering, University of Birmingham, UK, E-mail: nardelli45@gmail.com

Citation Nardelli F (2024) Oncologic Interventional Radiology: Advancements in Cancer Treatment. J Imaging Interv Radiol. 7:15.

Copyright © 2024 Nardelli F. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

© Under License of Creative Commons Attribution 4.0 License
This article is available in: https://www.primescholars.com/

CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

REFERENCES

1. Weinberg EO, Shimpo M, Hurwitz S, Tominaga SI, Rouleau JL, et al. (2003) Identification of serum soluble ST2 receptor as a novel heart failure biomarker. Circulation 107(5): 721-726.

2. Christina LP, Luk KS, Chiang L, Chan CK, Kevin Ho, et al. (2021) Soluble suppression of tumorigenicity 2 (sST2) for predicting disease severity or mortality outcomes in cardiovascular diseases: A systematic review and meta-analysis. Int J Cardiol Heart Vasc Oct 37:100887.

3. Demyanets S, Kaun C, Kaider A, Speidl W, Prager M, et al. (2020) The pro-inflammatory marker soluble suppression of tumorigenicity-2 (ST2) is reduced especially in diabetic morbidly obese patients undergoing bariatric surgery. Cardiovasc Diabetol 19(1):26.

4. Teo A, Chia PY, Ramireddi GK, Khoo SKM, Yeo TW, et al. (2022) Clinical and prognostic relevance of sST2 in adults with dengue-associated cardiac impairment and severe dengue. PLoS Negl Trop Dis 16(10): e0010864.