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Exploring Minimally Invasive Interventional Strategies in Hepatocellular Carcinoma Patients: A Comparative Study

I Research Background & Motivation

- **Hepatocellular carcinoma (HCC) is a major cause of cancer-related deaths worldwide**
  - 41,210 new cases of primary liver cancer will be diagnosed this year in the US[1]
  - 29,380 people will die of these cancers[1]
- **Liver transplantation (LT) is the gold standard for treatment, but not all patients obtain a suitable donor organ in time**
- **Alternative treatment modalities can improve survival outcomes**

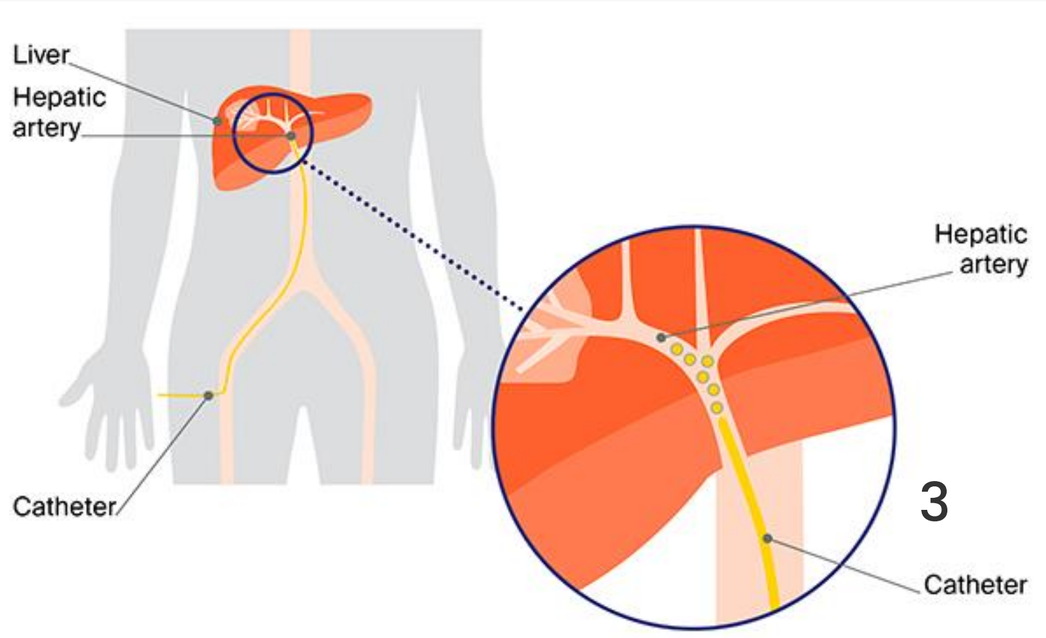
Including transarterial (chemo)embolization (TAE), surgical resection (SR), radiofrequency ablation, chemotherapy, immunotherapy, and radiation therapy-depending on stage, overall health, and availability.

[1]American Cancer Society. Facts & Figures 2023. American Cancer Society. Atlanta, Ga. 2023.

This study compares the 5-year mortality rates and outcomes between patients with HCC receiving liver transplantation or TAE prior to liver transplantation.

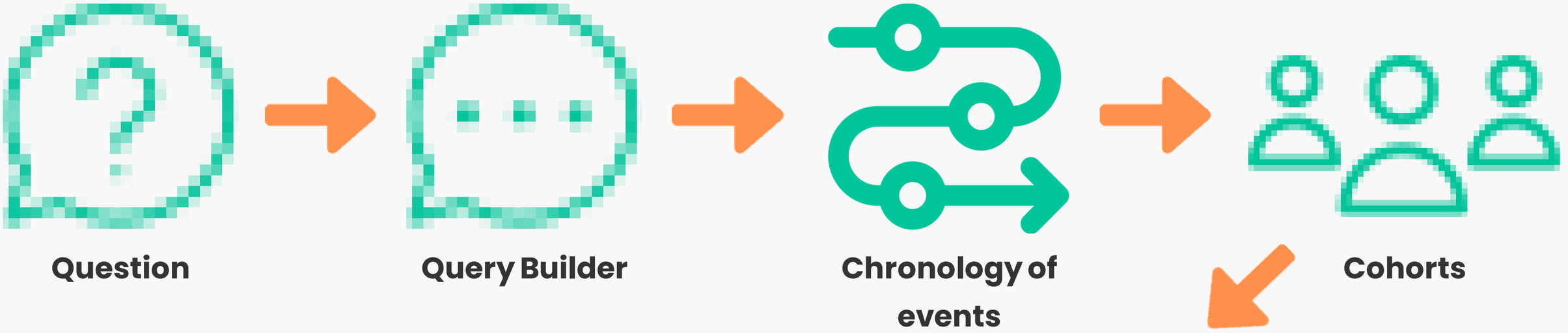
III Transarterial Embolization

- Minimally invasive procedure to block blood supply to tumor-shrinking or slowing tumor growth
  - Catheter inserted, guided to tumor artery, embolic agents block artery
- Typical indications: Unresectable tumor, surgery/treatments not feasible
- Advantages: Prolonged survival, minimally invasive, favorable side-effect profile



[2]Cancer Council Australia. Transarterial Chemoembolization (TACE) for Liver Cancer. [Accessed on 09/19/23]. Available from: https://www.cancercouncil.com.au/liver-cancer/treatment/tace/

IV TriNetX Explained



Study design

Propensity score-matched retrospective cohort study using the TriNetX database comparing survival outcomes.

Matching Characteristics

Age, sex, ethnicity, race, cardio & cerebrovascular diseases, hepatic & biliary pathologies, BMI, diabetes, and chemotherapeutic drugs

Cohorts

Cohort 1: Patients with HCC who received LT, excluding patients who received TAE

Cohort 2: Patients with HCC who received TAE followed by LT

Exclusion Criteria

Patients who received surgical procedures of the liver, including hepatectomy and excision

VI Outcomes of Interest

- **Mortality**
- **Extra-hepatic malignancy**

Over the course of 5-years after receiving liver transplant in both cohorts.

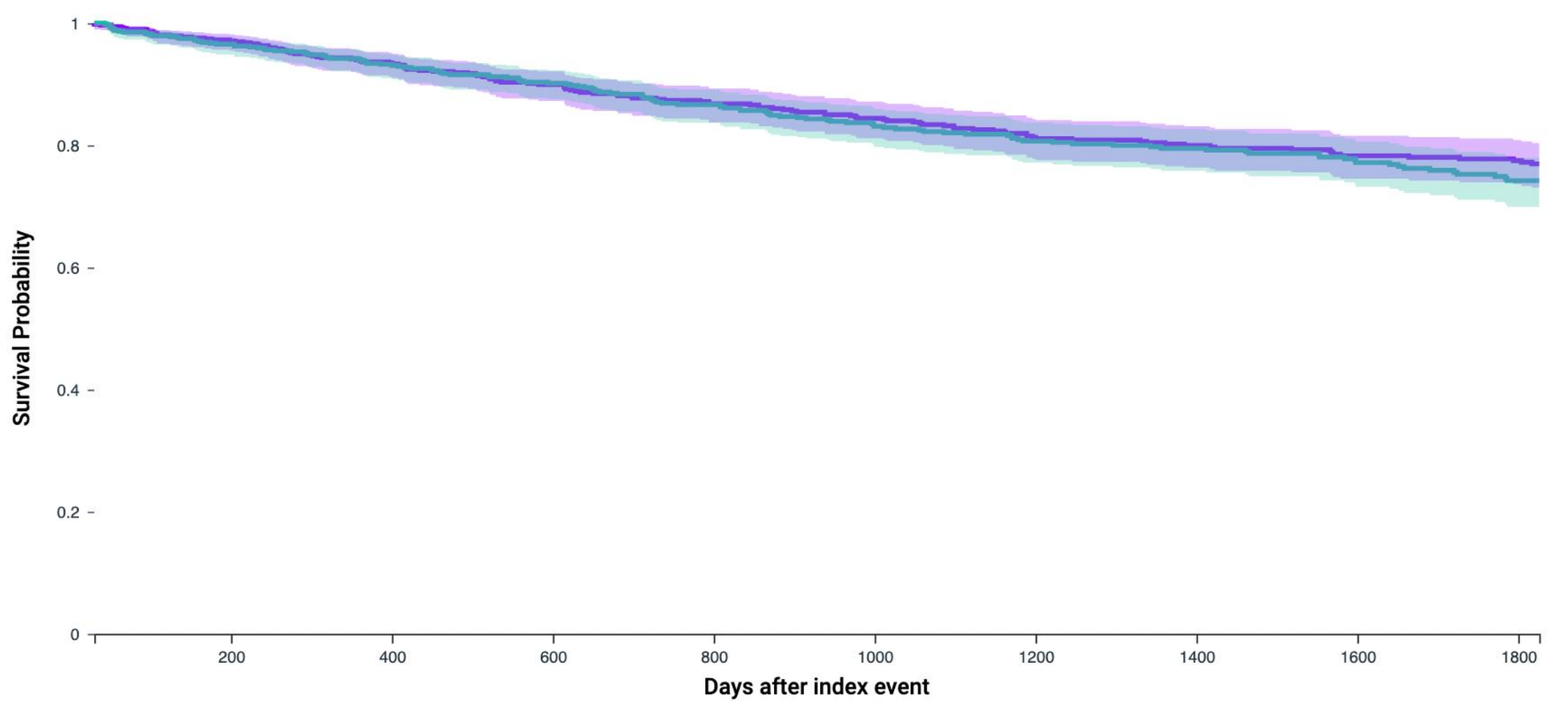
VII Patient Demographics

- After matching, there were 745 patients in each cohort (LT,TAE).
- There were no significant differences in patient demographics.
  - Mean age at transplant was 61 ± 8.1 yrs ($p<0.05$)
  - 78.7% male ($p<0.05$)
  - 8.2% African American ($p<0.05$)

VIII Kaplan-Meier Analysis

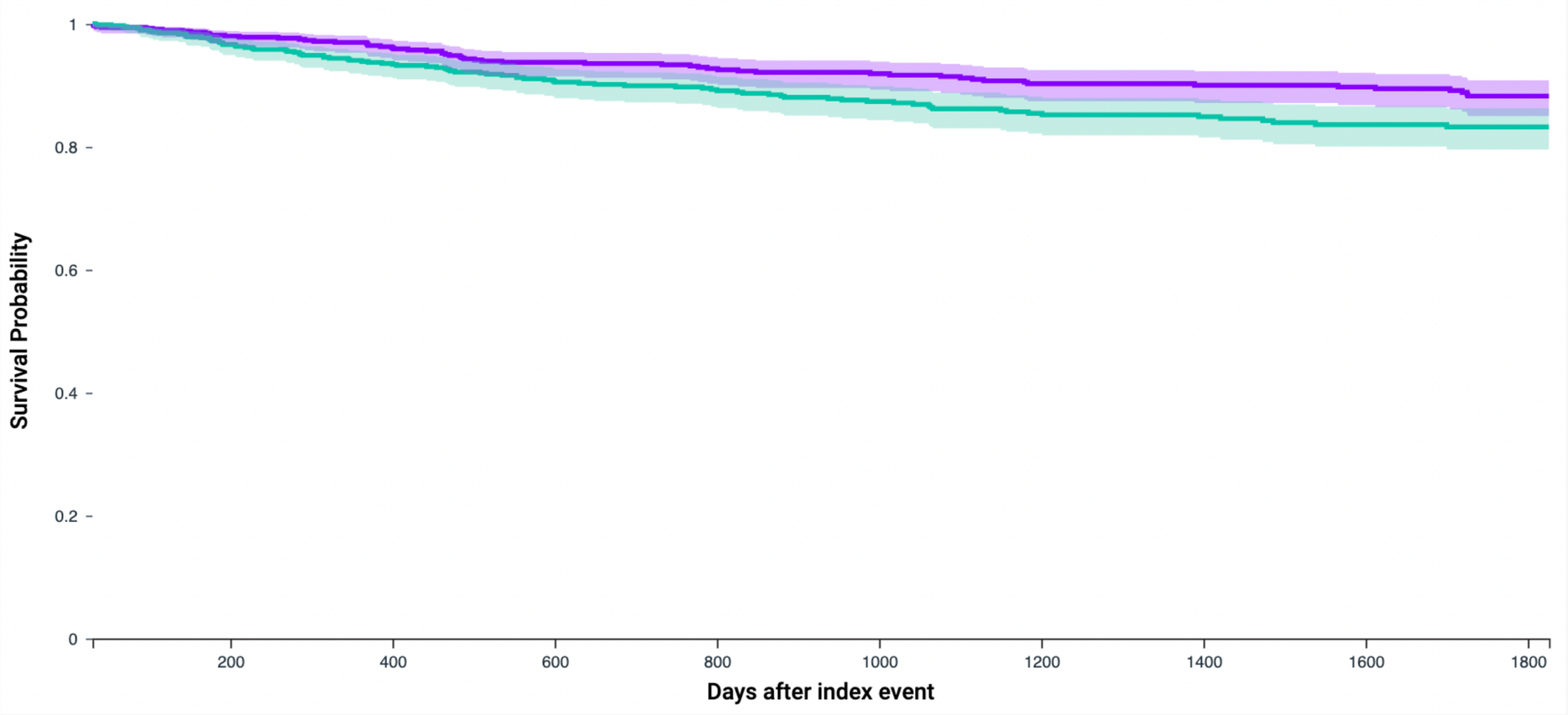
Outcome	Cohort	Incidences (%)	*p*	Hazard Ratio (95% Confidence Interval)
Mortality	LT	23.42	0.58	0.935 (0.739,1.183)
	TAE	26.36		
Extra-hepatic malignancy	LT	9.97	<0.01	0.534 (0.382,0.747)
	TAE	17.22		

IX Mortality Curve



Probability of survival between LT and TAE cohorts within 5 years of transplantation

X Disease-free Survival Curve



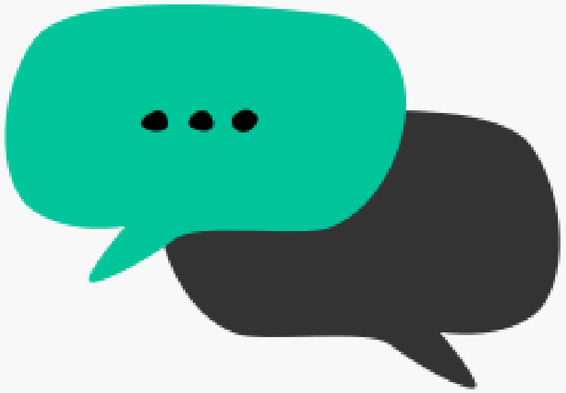
Probability of disease-free survival between LT and TAE cohorts within 5 years of transplantation

XI Discussion & Conclusion

- **No difference in 5-year mortality rates was observed between LT and TAE as a bridge therapy to LT for hepatocellular carcinoma (HCC) patients.**
- **The TAE group had a higher incidence of extra-hepatic malignancy (metastases).**

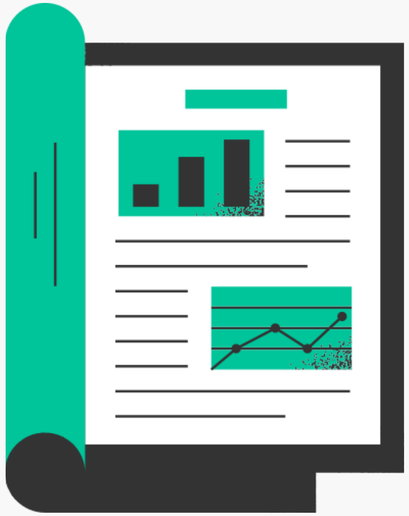
  - These findings indicate that the utilization of TAE as a bridge therapy to transplantation may not have a significant effect in reducing mortality from HCC.
  - Clinicians should be aware of the role, advantages, and limitations of TAE when when making clinical decisions regarding treatment of patients with HCC.

XII Discussion & Conclusion Cont.



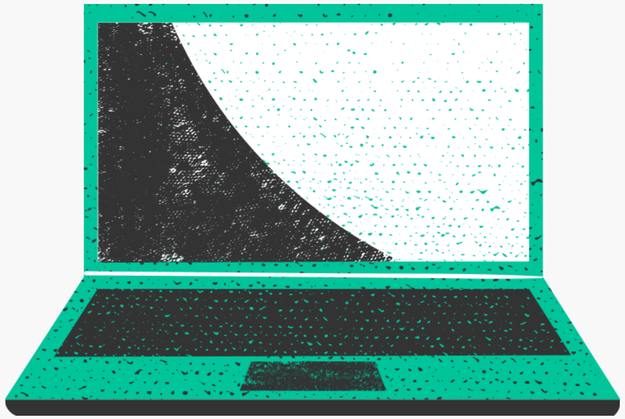
Confounding Variables

- Donor age, liver transplant type (deceased or living), donor cause of death.
- Tumor characteristics: size, vascular invasion, burden/behavior.



Study Limitations

- Reliance on retrospective data from TriNetX database.
- Lack of granularity.
- Might not capture relative severity of disease between patients.



Downstream Avenues

- Understand influence of other factors such as liver function, cost-effectiveness, and quality of life to better refine/tailor bridge therapies.
- Explore further outcomes

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Thank you for listening!