Comparison of Survival Outcomes and Hypoglycemic Control in Patients Receiving Systemic Therapy for Malignant Insulinoma

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OBJECTIVES

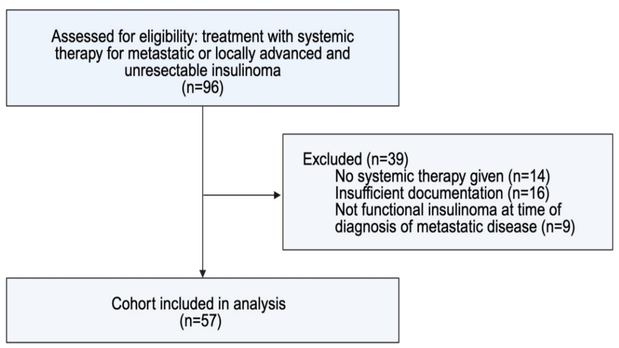
1. Describe a large cohort of patients with locally advanced, unresectable or metastatic insulinoma
2. Evaluate the efficacy of various systemic therapies for survival outcomes and clinical management of refractory hypoglycemia

METHODS

- Retrospective chart review all patients treated for malignant insulinoma at Mayo Clinic (1/1/1992-7/1/2024)
- Data extracted included demographics, oncologic history, and endocrine history
- Survival analysis via Kaplan-Meier Method. Median PFS calculated from therapy start date until radiographic progression. Median OS calculated from therapy start date until death or last contact.

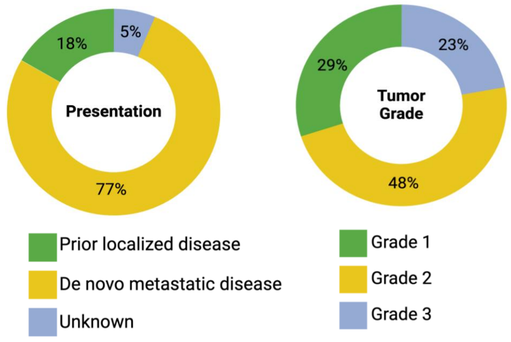
Determination of hypoglycemic control with systemic therapy:

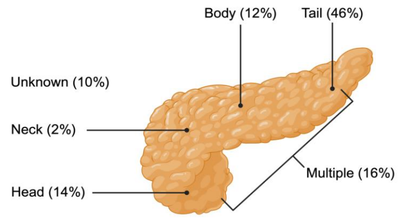
1. Determine baseline severity on scale of 0 to 3
   - 0 = mild asymptomatic hypoglycemia
   - 1 = diet-controlled
   - 2 = requiring meds, surgery, or regional therapy
   - 3 = requiring hospitalization
2. Determination of stability, worsening, or improvement in hypoglycemia based on the following changes:
   - Frequency of hypoglycemia
   - Severity of hypoglycemia
   - Initiation, discontinuation, or dose adjustment of hyperglycemic meds
   - Requiring regional therapy for hypoglycemic control
   - Switching therapy for hypoglycemic control



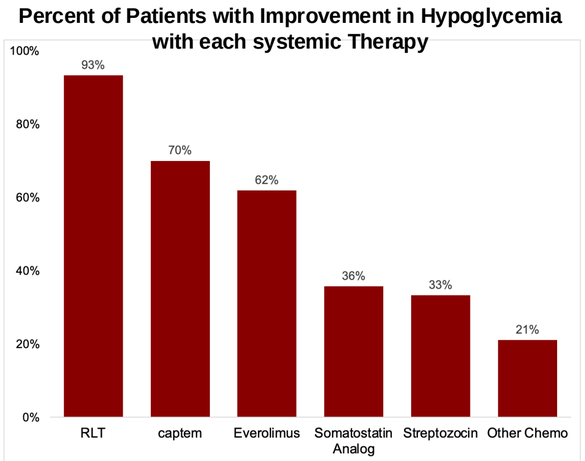
COHORT CHARACTERISTICS

Cohort Characteristics	n (%)
Total	57 (100)
Male	31 (54)
Female	26 (46)
Median Age at Diagnosis (years)	52.6
MEN1 Syndrome	2 (3.5)

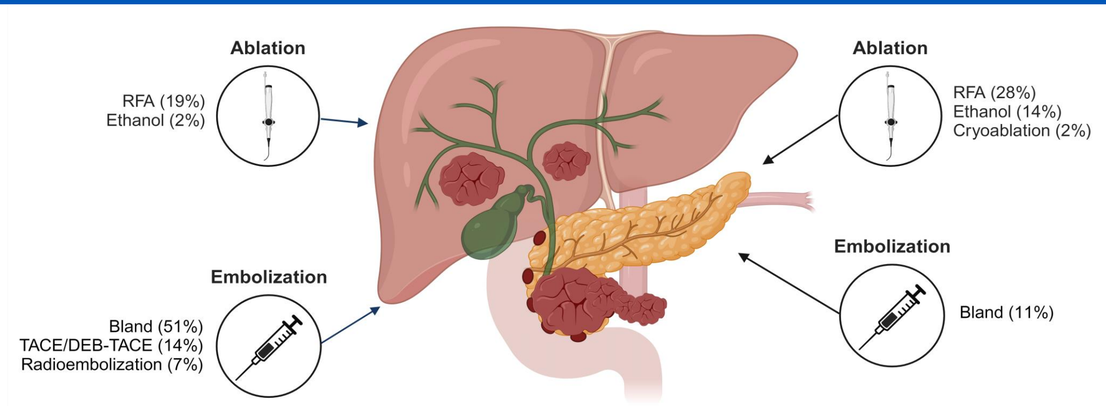




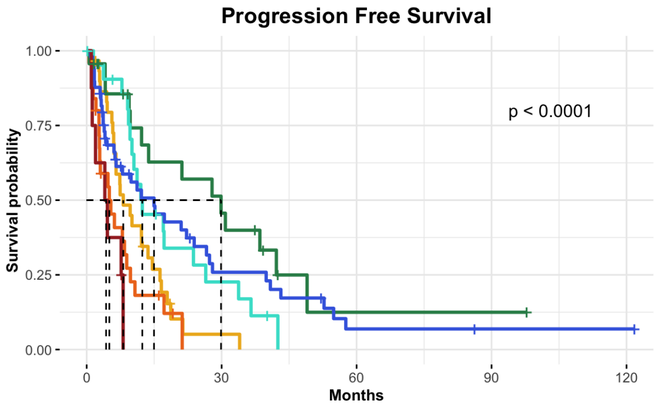
HYPOGLYCEMIC CONTROL



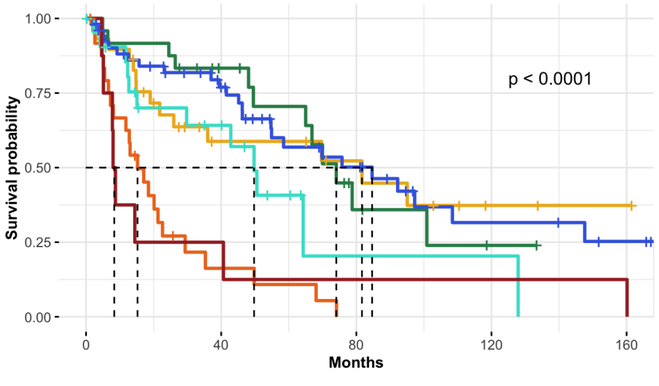
REGIONAL THERAPY



SURVIVAL



Therapy	n (%)	Median PFS (months)	Median OS (months)
Capecitabine and temozolomide	30 (53)	8.13	81.67
Streptozocin-based therapy	8 (14)	4.32	8.35
Other chemotherapy	25 (44)	5.03	15.23
Everolimus	24 (42)	29.90	74.07
Radioligand therapy	22 (39)	12.40	49.73
Somatostatin analog	51 (89)	15.00	84.67



CONCLUSION

- Overall survival for malignant insulinoma can be several years with appropriate therapy
- Systemic treatment with RLT, CAPTEM, or everolimus is very effective for hypoglycemic control
- Radioligand therapy and CAPTEM resulted in the most favorable control of hypoglycemia and longest OS
- The ideal sequencing of therapy is not known

REFERENCES

Magalhães D, Sampaio IL, Ferreira G, et al. Peptide receptor radionuclide therapy with 177 Lu-DOTA-TATE as a promising treatment of malignant insulinoma: a series of case reports and literature review. J Endocrinol Invest . 2019;42:249–260.

Sullivan L, Armeni E, Hayes A, et al. The efficacy of Lutetium-177 DOTATATE in refractory symptoms of functional pancreatic neuroendocrine tumours. Poster presented at: 16th Annual ENETS Conference, March 6–8, 2019, Barcelona, Spain.

van Schaik E, van Vliet EI, Feelders RA, et al. Improved control of severe hypoglycemia in patients with malignant insulinomas by peptide receptor radionuclide therapy. J Clin Endocrinol Metab . 2011;96:3381–3389.

Veltroni A, Cosaro E, Spada F, et al. Clinico-pathological features, treatments and survival of malignant insulinomas: a multicenter study. Eur J Endocrinol . 2020;182:439–446.