

Liver Transplantation for Intrahepatic Cholangiocarcinoma University of Cincinnati

Patients with Stage I-II intrahepatic cholangiocarcinoma (iCCA) demonstrating stability of disease with >6 months of neoadjuvant chemotherapy can be considered candidates for liver if the following criteria are met:

Patient specific factors

- Good performance status, ECOG 0 or 1
- Meet standard liver transplant inclusion criteria (cardiopulmonary, financial, psychosocial)

Primary Diagnosis

- Biopsy/cytology findings consistent with iCCA
- No evidence of concurrent HCC or mixed pathology
- Transperitoneal aspiration or biopsy should be minimized
- iCCA not amendable to surgical resection considerations as determined by multidisciplinary tumor board either (1) technically or (2) underlying liver disease
- Stage I and II can be considered

iCCA based exclusion criteria

- *Presence of extrahepatic disease*
- *Lymph node involvement*
- *Invasion/encasement of major hepatic vascular structures*
- *Perforation of visceral peritoneum*
- *Invasion into extrahepatic structures*
- *Invasion of perihilar fat*
- *Periductular invasion*

Staging Workup

- Initial Staging: PET scan or CT/MRI chest, abdomen and pelvis, CA 19-9
- Restaging (*every 3 months*): PET scan or CT/MRI chest, abdomen and pelvis, CA 19-9
- Radiographically suspicious regional lymph nodes should be sampled before neoadjuvant therapy, if possible, to rule out regional nodal metastases
- Suspicious extrahepatic lesions should be biopsied to rule out extrahepatic disease

Neoadjuvant therapy for minimum of 6 months duration

- Must have received first line therapy at discretion of treating oncologist
- Second line chemotherapy for progression or intolerance of first line
- Biologics or targeted therapies considered based on next gen sequencing profile
- Locoregional therapy may be utilized (SIRT, XRT/proton, ablation, hepatic artery infusion therapy, etc.)

- Patients must have stability or regression of disease for 6 months while on therapy. This will be assessed with imaging (chest and abdomen), +/- PET every three months until transplant.

Staging Operation

- Performed after minimum of 6 months of stability or regression of hepatic disease on therapy.
- Laparoscopic, robotic or open hilar lymphadenectomy (hepatic artery, portocaval, or other abnormal nodes) including evaluation of other extrahepatic masses which should be biopsied.
- Patients with negative staging will be listed for transplant. If unable to undergo staging operation, then hilar lymphadenectomy will be performed at time of liver transplant, with transplant being aborted in case of positive lymph nodes.

Transplant

- Conventional liver transplant operation, with allocation based on candidate's native MELD score.
- Only utilize extended criteria liver allografts (elderly (>70), steatotic (>30% macro), split livers, HBV/HCV NAT +, DCD, national shares, or open offers) if candidate's native MELD < 15. LDLT can be considered.
- Backup candidate brought in for all deceased donor allografts.

Immunosuppression

- Standard immunosuppression regimen with conversion to mTOR inhibitor from calcineurin inhibitor at one-month post-transplant.

Adjuvant therapy

- At the discretion of treating medical oncologist.

Post-transplant surveillance

- CT/MRI (chest, abdomen and pelvis) with CA 19-9 every three months for the first 2 years then every 6 months for 5 years. Additional monitoring to be determined per oncologist.