

23. Intrahepatic Bile Ducts

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Emerging Prognostic Factors for Clinical Care

Tumor Growth Pattern

Tumor growth pattern can be identified based on preoperative cross-sectional imaging, as well as on surgical pathology. The typical classification of tumor growth patterns include mass-forming, periductal infiltrating, and mixed mass-forming/periductal infiltrating growth patterns. Periductal infiltrating growth may be associated with a worse prognosis, and mass-forming growth pattern may have a more favorable prognosis. AJCC Level of Evidence: III

Molecular/Genetic Evaluation

Some groups have reported somatic alterations in the *KRAS*, *TP53*, *CDKN2A*, and *SMAD4 (DPC4)* genes in cholangiocarcinoma. Other investigators have identified mutations in genes encoding for molecules of the phosphatidylinositide 3-kinase (PI3K) cell-signaling pathway (e.g., *PIK3CA*, *PTEN*, and *AKT1*), as well as for isocitrate dehydrogenase 1 and 2 (*IDH1* and *IDH2*). The data suggest that *IDH1* and *IDH2* may be the more commonly identified genetic mutations in IHCC tumors; however, their effect on patient prognosis remains uncertain. AJCC Level of Evidence: III

Risk Assessment Models

The AJCC recently established guidelines that will be used to evaluate published statistical prediction models for the purpose of granting endorsement for clinical use.¹ Although this is a monumental step toward the goal of precision medicine, this work was published only very recently. Therefore, the existing models that have been published or may be in clinical use have not yet been evaluated for this cancer site by the Precision Medicine Core of the AJCC. In the future, the statistical prediction models for this cancer site will be evaluated, and those that meet all AJCC criteria will be endorsed.

Recommendations for Clinical Trial Stratification

- Neoadjuvant systemic therapy versus primary surgical therapy for T4,N0,M0 and Tany,N1,M0 (Stage IIIB IHCC)
- Adjuvant therapy versus observation after resection of T3,N0,M0 (Stage IIIA IHCC)
- Adjuvant chemotherapy versus adjuvant chemoradiotherapy after resection of Tany,N1,M0 (Stage IIIA IHCC)

Bibliography

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1. Kattan MW, Hess KR, Amin MB, et al. American Joint Committee on Cancer acceptance criteria for inclusion of risk models for individualized prognosis in the practice of precision medicine. *CA: a cancer journal for clinicians*. 2016.