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## Benefits and pitfalls of surgical resection after downstaging concurrent chemoradiation therapy in patients with locally advanced perihilar cholangiocarcinoma

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**Introduction**: Although surgical complete resection is only curable chance of long-term survival, majority of patients who present with perihilar cholangiocarcinoma (PHCC) are unresectable at the time of diagnosis. This study evaluated the down-staging efficacy and postoperative outcome of neoadjuvant concurrent chemoradiation therapy (NACCRT) followed by surgical resection in patients with locally advanced PHCC

**Methods**: From January 2000 to December 2018, 326 patients underwent surgical resection for treatment of PHCC at Severance Hospital. Among these patients, 28 (8.6%) patients got CCRT due to locally advanced extent of tumor. Perioperative outcome of the patients with NACCRT was compared the patients without neoadjuvant CCRT. Additionally, long-term survivals after surgical resection were evaluated and analyzed.

**Results**: Of the 28 patients underwent NACCRT, 71.4% were due to involvement of main hepatic artery or portal vein. R0 resection was achieved for 26 (92.9%) including 5 patients with complete pathological response. This curability rate is significantly higher compared with non-CCRT group. (73.5%, p=0.023) Hospital mortality (25% vs 6.7%) was significantly higher in CCRT group. (p=0.001). NACCRT group showed a high frequency of complication (78.6% vs 61.7%) even though there was no statistically significance (p=0.083). Disease free survival and overall survival were not significantly different between two groups (p=0.939 and p=0.575, respectively).

**Conclusions**: NACCRT does not affect long-term survival. However, NACCRT could contribute to allow tumor downstaging and has potential to increase resection rate and curability in patients with locally advanced PHCC. High mortality and complication rates should not be overlooked. Optimal treatment protocol should be developed in a well-designed prospective study.

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