

# **Impact of Upfront Cytoreductive Nephrectomy on Overall Survival in Metastatic Renal Cell Carcinoma Patients Treated with First-line Immunotherapy: A Real-World Data Analysis**

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## **Introduction**

Kidney cancer, particularly renal cell carcinoma (RCC), poses a significant global health challenge. Despite advancements in treatment, metastatic RCC (mRCC) remains associated with poor prognosis. While systemic therapies are standard for mRCC, the role of cytoreductive nephrectomy (CN) remains debated, especially in the era of targeted therapies and immunotherapies.

## **Methods**

A retrospective study using the TriNetX US Collaborative Network analyzed 57 healthcare organizations' data. Adult mRCC patients receiving first-line systemic treatment between 2008 and 2022 were included. Upfront CN was defined as performed before the initiation of first-line therapy. The primary outcome was overall survival (OS), evaluated using Kaplan-Meier methodology.

## **Results**

Across different first-line treatments, lower mortality was associated with upfront CN. For Ipi-Niv and Cab-Niv, median survival was significantly longer in the CN group. Similar trends were observed for Axi-Pem. While not statistically significant due to the small sample size, a trend towards lower mortality with CN was seen in the Len-Pem group. Stratification by IMDC risk score further highlighted the potential benefit of CN, especially in intermediate-risk patients.

## **Discussion**

While CN can be associated with significant complications, our findings align with previous research demonstrating a survival benefit with upfront CN, particularly in patients receiving ICI-based regimens. The observed OS advantage with CN in Axi-Pem further supports its potential role in enhancing treatment efficacy.

The limitations of this study, including the exclusion of high-risk patients and those with delayed CN, warrant further investigation. Nevertheless, these real-world data provide valuable insights into the potential benefits of upfront CN in select mRCC patients, emphasizing the need for personalized treatment approaches.

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