



IKCS: NORTH AMERICA
INTERNATIONAL KIDNEY CANCER SYMPOSIUM

Biomarkers of Disease Burden and Treatment Response in Renal Medullary Carcinoma

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**Session #6: Multidisciplinary Team
Approaches to Rare Subtypes**

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Learning Objective

- Recognize CA-125 as a potential biomarker of RMC disease burden

RMC is Rare and Deadly

Problem:

- RMC is a rare but deadly kidney cancer that predominately afflicts young individuals with sickle hemoglobinopathies.
- Less than 5% of patients survive beyond 3 years.
- Uniquely resistant to systemic therapies established for ccRCC

Need Exists

- Unmet need for biomarkers of disease burden and treatment response to guide individualized therapeutic approaches

MDA Anecdotal Experience:

- CA-125 is elevated in RMC
- Decreases with remission
- Skyrockets when patient is end of life

1. Davis CJ Jr., et al. Renal medullary carcinoma. The seventh sickle cell nephropathy. *Am J Surg Pathol* 1995
2. Beckermann KE, et al. Renal Medullary Carcinoma: Establishing Standards in Practice. *J Oncol Pract* 2017.
3. Shah AY, et al. Management and outcomes of patients with renal medullary carcinoma: a multicentre collaborative study. *BJU Int* 2017
4. Tannir NM, et al. A phase 2 trial of sunitinib in patients with advanced non-clear cell renal cell carcinoma. *Eur Urol* 2012.

Study Design to Determine Clinical Biomarker of RMC

Retrospective Review

- 33 patients available with serum tumor markers

Hypothesis:

- CA-125 or other established serum tumor markers can be used to monitor disease severity, response to treatment

Study Plan: Trend Serum Levels of Known Malignancy Biomarkers with:

- Disease course, treatment
- Burden of metastatic disease and/or locations
- Birth Sex

Serum Tumor Markers Assessed (8)

AFP

LDH

b2 microglobulin

CA-125

CA-19.9

CA-15.3

CEA

bHCG

Demographics

Birth Sex: Male: 23 (69.7%); Female: 10 (30.3%)

Laterality: Left: 18 (54.5%) | Right: 15 (45.5%)

Median Age: 35 years (IQR 22.00 - 39.00)

Metastatic at diagnosis?: 31 patients (93.9%)

Race: Black: 32 (96.9%); White: 1 (3.0%)

Similar to reported experiences

BJU Int. 2017 December ; 120(6): 782–792. doi:10.1111/bju.13705.

Sickle Hemoglobinopathies:

Sickle Trait: 31 (93.9%)

Sickle B Thalassemia 1: (3.0%)

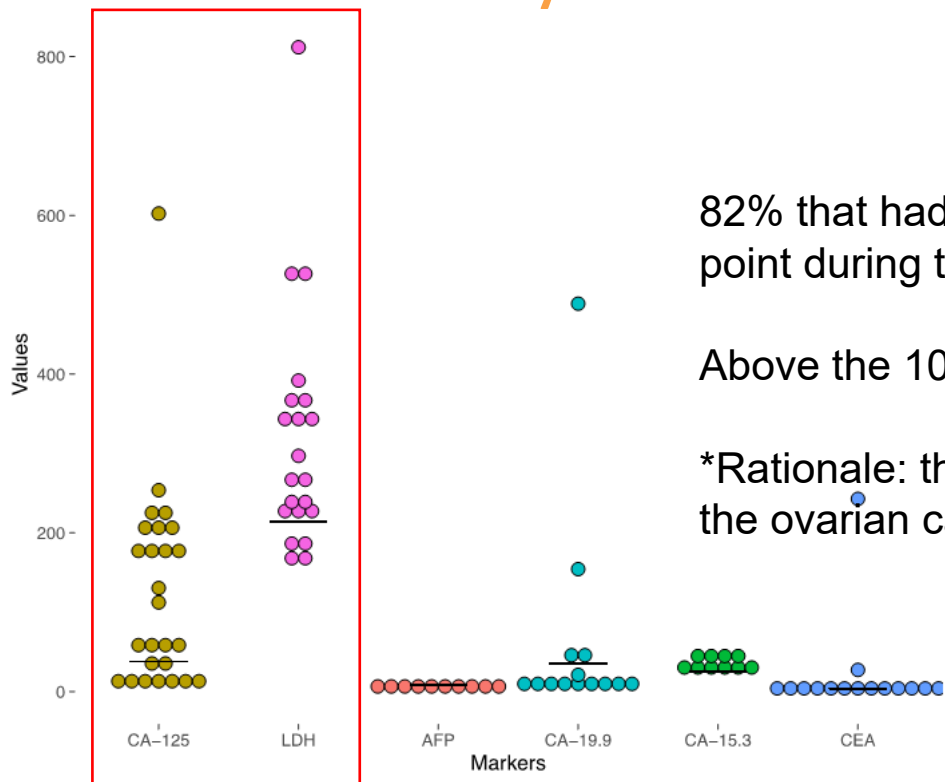
None: 1 (3.0%)

Management and outcomes of patients with renal medullary carcinoma: a multicentre collaborative study

Amishi Y. Shah^{*}, Jose A. Karam^{*}, Gabriel G. Malouf[†], Priya Rao^{*}, Zita D. Lim^{*}, Eric Jonasch^{*}, Lianchun Xiao^{*}, Jianjun Gao^{*}, Ulka N. Vaishampayan[‡], Daniel Y. Heng[§], Elizabeth R. Plimack[¶], Elizabeth A. Guancial^{**}, Chunkit Fung^{**}, Stefanie R. Lowas^{††}, Pheroze Tamboli^{*}, Kanishka Sircar^{*}, Surena F. Matin^{*}, W. Kimryn Rathmell^{§§}, Christopher G. Wood^{*}, Nizar M. Tannir^{*}

1. Shah, et al. Management and outcomes of patients with renal medullary carcinoma: a multicentre collaborative study. *BJU Int* 2017.

CA-125 Consistently Elevated in mRMC



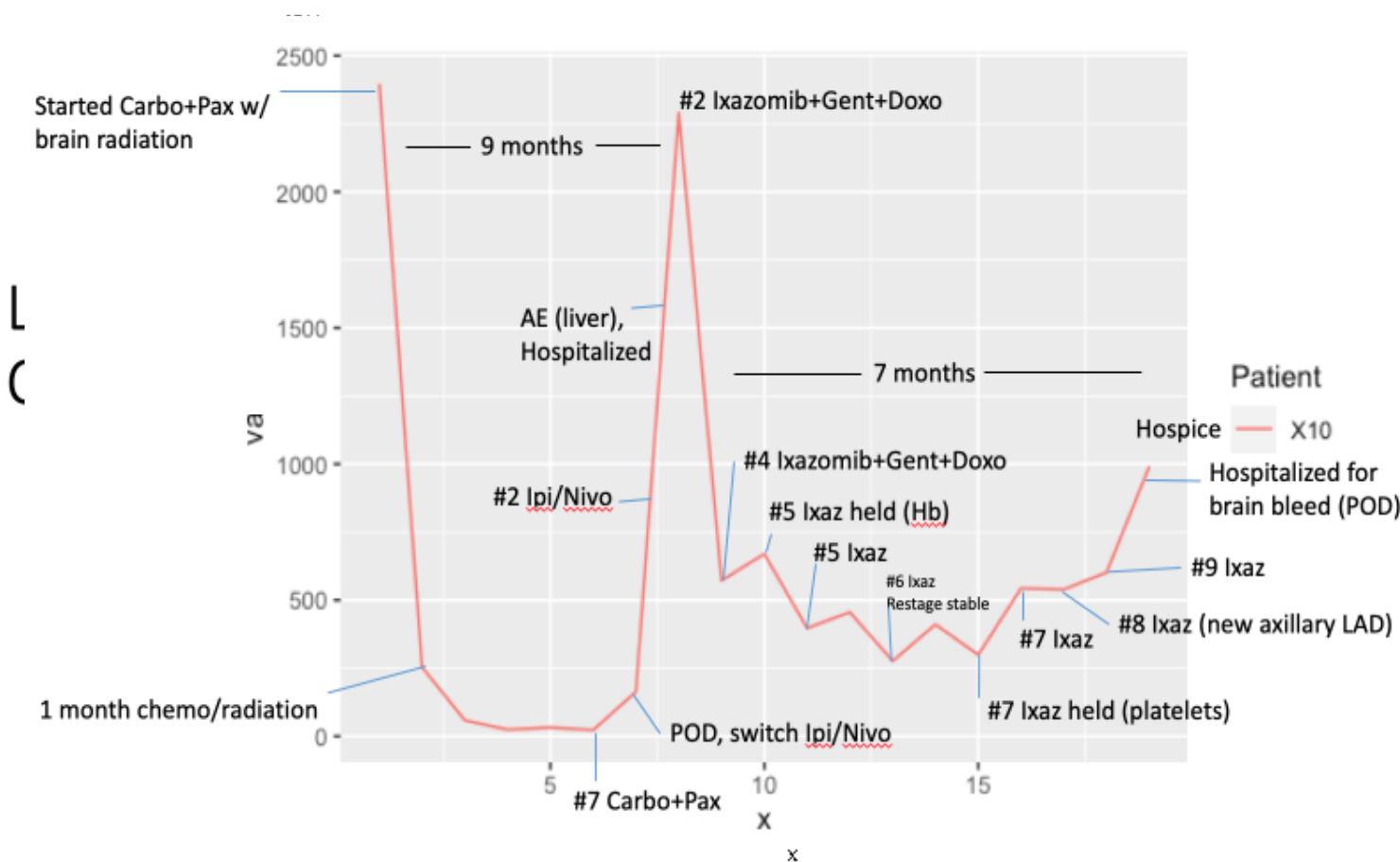
82% that had an elevated CA-125 at ANY point during their course

Above the 100 ng/mL threshold* : 58%

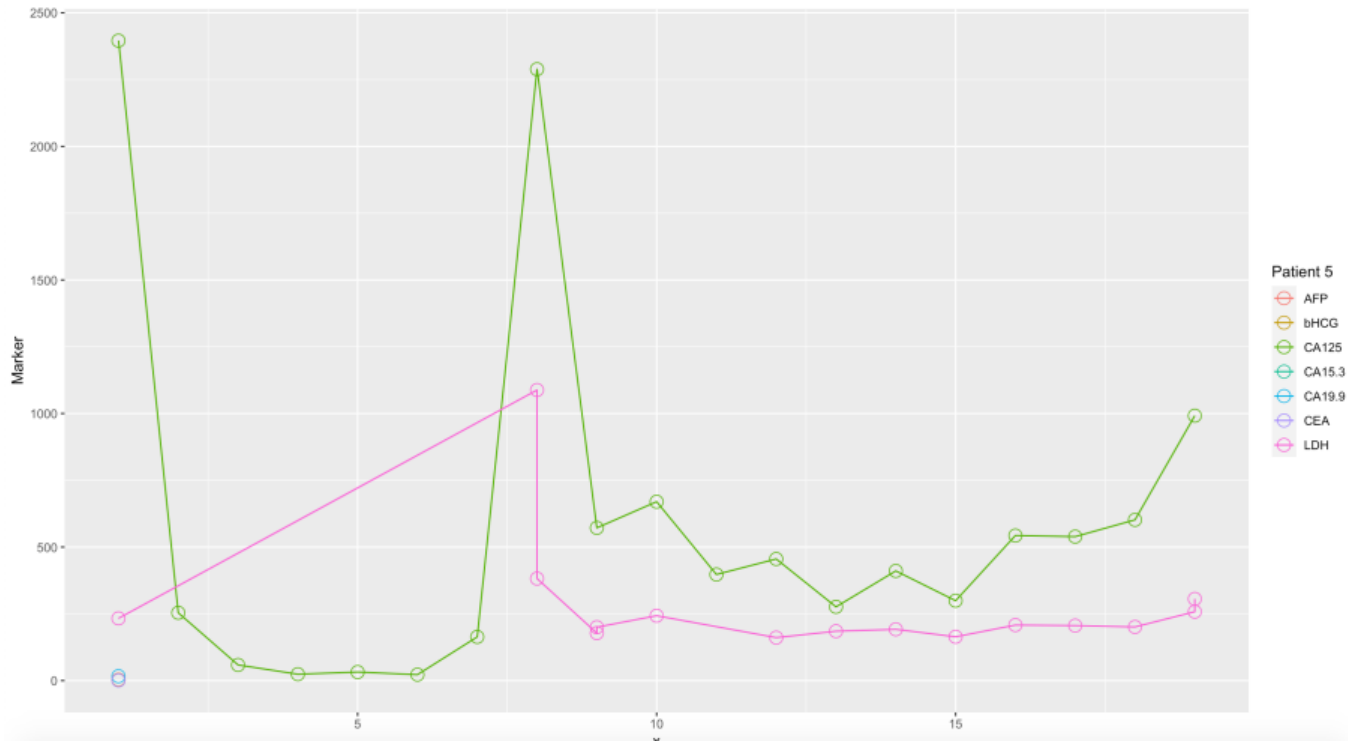
*Rationale: therapeutic targeting as per the ovarian cancer experience

CA-125 Correlates with Burden and Response

CA-125 Proof of Concept



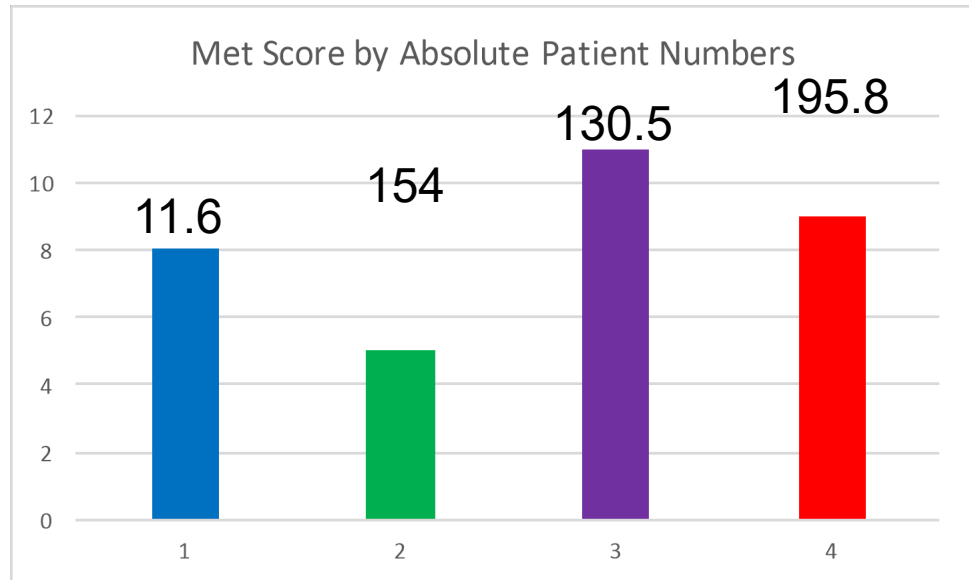
CA-125 and LDH Corresponded to Tx Response



Increased Metastatic Burden = Increased CA-125

Met Scoring System

- 1 score: 8 patients
- 2 score: 5 patients
- 3 score: 11 patients
- 4 score: 9 patients



Take Home Messages

Take Home Messages:

CA-125 correlated with treatment and disease progression

- Increases with worsening disease or met burden
- Decreases with treatment response and decreased mets

Implications moving forward:

- Potential marker of disease response and metastatic burden
- Potential therapeutic target
- Reproducible and easily accessible, clinically.