Sites of Metastasis and Survival in Metastatic Renal-Cell Carcinoma (mRCC):
Results from the International mRCC Database Consortium (IMDC)

Shaan Dudani[1], Guillermo de Velasco[2], J. Connor Wells[1], Chun Loo Gan[1], Frede Donskov[3], Camillo Porta[4], Anna Fraccon[5], Felice Pasini[6], Aaron Hansen[7], Georg A Bjarnason[8], Benoit Beuselinck[9], Sumanta K Pal[10], Sebastien Hotte[11], Aly-Khan A. Lalani[11], Takeshi Yuasa[12], Ravindran Kanesvaran[13], M. Neil Reaume[14], Christina Canil[14], Toni K. Choueiri[15], Daniel YC Heng[1]

[1]Tom Baker Cancer Centre, University of Calgary, Calgary, AB, Canada; [2]University Hospital 12 de Octubre, Madrid, Spain; [3]Aarhus University Hospital, Aarhus, Denmark; [4]IRCCS San Matteo University Hospital Foundation, Pavia, Italy; [5]CDC Pererzoli, Peschiera del Garda, Italy; [6]Oncologia Medica Ospedale Santa Maria della Misericordia, Rovigo, Italy; [7]Princess Margaret Cancer Centre, Toronto, ON, Canada; [8]Sunnybrook Research Institute, Toronto, ON, Canada; [9]University Hospitals Leuven, Leuven Cancer Institute, Leuven, Belgium; [10]City of Hope Comprehensive Cancer Center, Duarte, CA; [11]Juravinski Cancer Centre, McMaster University, Hamilton, ON, Canada; [12]Cancer Institute Hospital of Japanese Foundation for Cancer Research, Tokyo, Japan; [13]Department of Medical Oncology, National Cancer Centre Singapore, Singapore; [14]The Ottawa Hospital Cancer Centre, University of Ottawa, ON, Canada; [15]Dana-Farber Cancer Institute/Brigham and Women's Hospital/Harvard Medical School, Boston, MA

Background

- Across a variety of malignancies, sites of metastatic involvement are known to be associated with differences in survival.[1,2]
- mRCC comprises a heterogeneous group of malignancies with varied molecular and genetic aberrations and clinical phenotypes.
- Sites of metastatic involvement are known to be associated with prognosis in mRCC and may reflect differences in underlying disease biology.[3]
- We sought to characterize the frequency and survival of patients with different sites of metastasis in mRCC.

Methods

- Using the IMDC dataset, all patients with mRCC starting treatment between 2002-2019 were identified and sites of metastatic involvement at time of first systemic therapy initiation were documented.
- Primary outcomes of interest were:
  - Prevalence of metastatic site involvement
  - Overall survival
- Multivariable Cox regression models were performed to adjust for imbalances in IMDC risk factors.

Results

- A total of 10,320 patients were included in the analysis.
- Frequency of metastatic site involvement and survival by site of metastatic involvement are reported in Figures 1 and 2, respectively.
- Patient characteristics are reported in Table 1.

Figure 1: Frequency of Metastatic Site Involvement

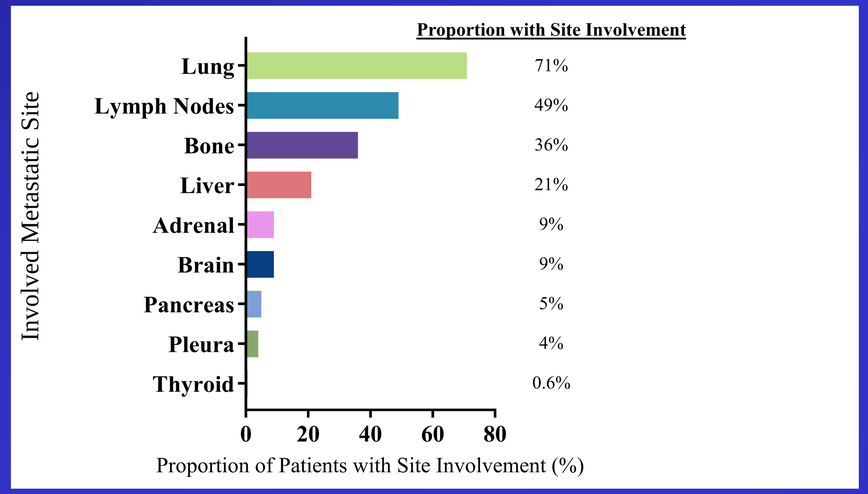
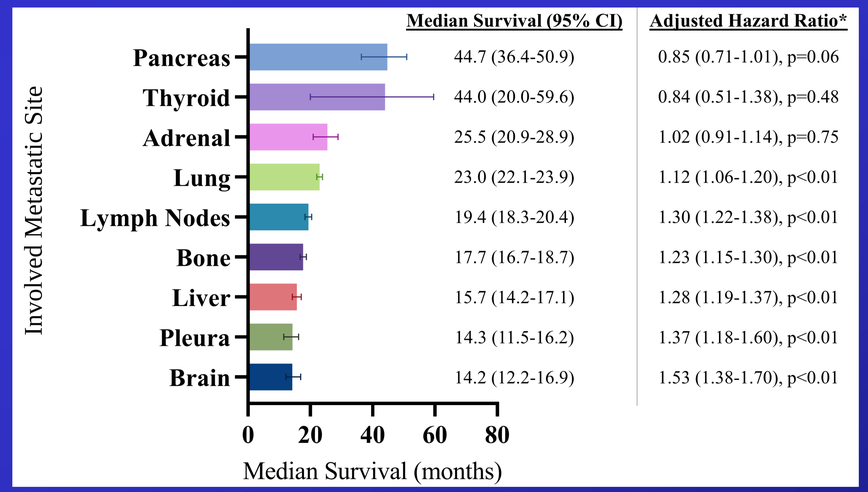


Figure 2: Survival by Site of Metastatic Involvement



*Comparing involved vs. non-involved site of metastasis, adjusted by IMDC criteria. Hazard ratio >1 denotes worse OS.

Table 1: Patient Characteristics

	N = 10,320
Age, median (IQR)	60 (52-67)
Male	7564 / 10,320 (73%)
ccRCC	8389 / 9610 (87%)
Nephrectomy	8280 / 10,300 (80%)
Sarcomatoid	1101 / 8394 (12%)
Region	
North America	5325 / 10,320 (52%)
Europe	3474 / 10,320 (34%)
Asia	1308 / 10,320 (13%)
Oceania	213 / 10,320 (2%)
IMDC Risk Groups	
Favourable	1471 / 7319 (20%)
Intermediate	3920 / 7319 (54%)
Poor	1928 / 7319 (26%)
First Line Therapy	
VEGF Targeted Agent	9268 / 10,320 (90%)
mTOR Targeted Agent	559 / 10,320 (5%)
IO	202 / 10,320 (2%)
IO + VEGF	141 / 10,320 (1%)
Other	150 / 10,320 (1%)

Conclusions

- In a cohort of >10,000 patients starting systemic therapy for mRCC, lung and lymph nodes were the most common sites of metastases.
- Metastases to endocrine organs (pancreas, thyroid, adrenal) were infrequent but were associated with the longest median OS. This finding is consistent with prior data from smaller selected cohorts.[4,5]
- Bone, liver, pleura and brain metastases were associated with poor OS (median <18 months).
- These benchmark values may be useful for patient counseling and study design.
- Sites of metastatic involvement may reflect differences in underlying disease biology, and further work to investigate differences in immune, molecular and genetic profiles between metastatic sites is warranted.

References

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Correspondence to: Daniel YC Heng MD MPH FRCPC, Tom Baker Cancer Centre, Calgary, Alberta, Canada. **Daniel.Heng@ahs.ca** **@DrDanielHeng**