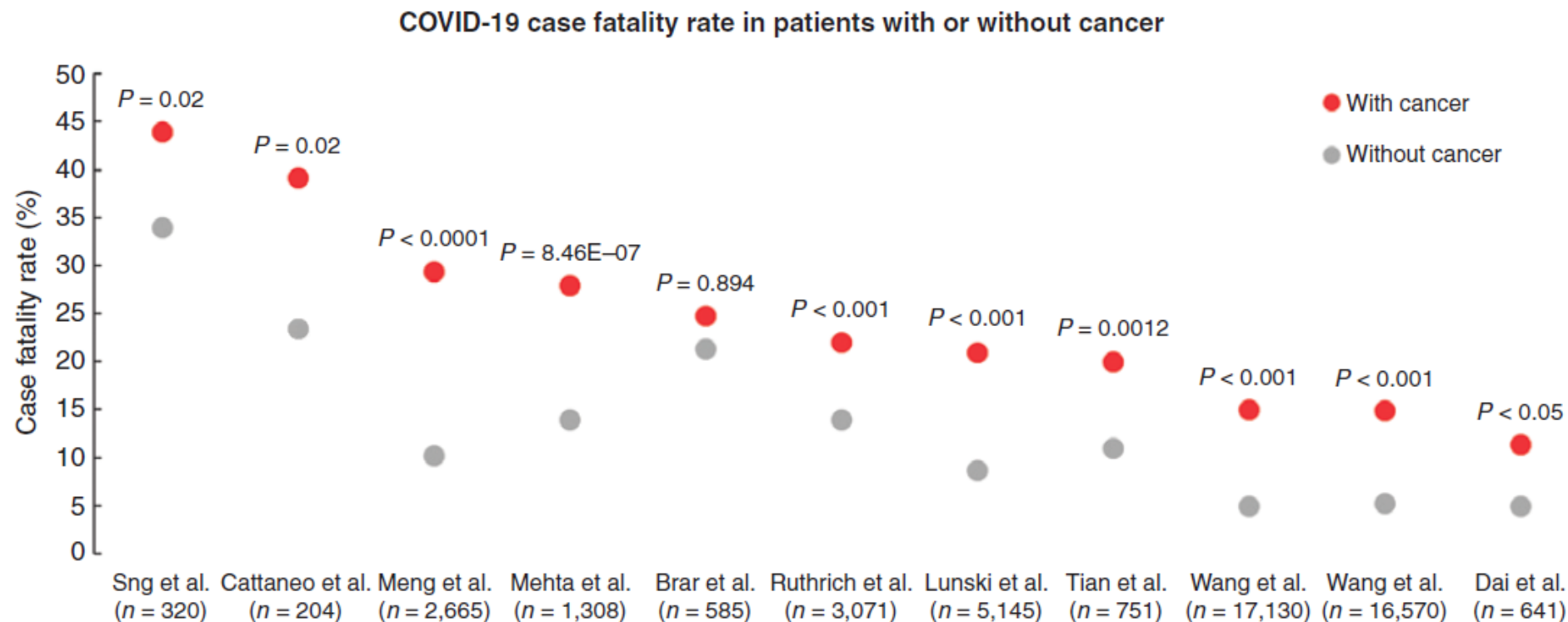


# **COVID and Patients on Immune Checkpoint Inhibitors**

Melinda L. Yushak, MD MPH  
Winship Cancer Institute  
Emory University

# Data on Cancer Patients



**Figure 1.** Scatter plot of COVID-19-related CFRs from series comparing rates from patients with cancer (red dots) with patients without cancer (gray dots). [Series includes publications from Sng et al. (2); Cattaneo et al. (7); Meng et al. (9); Mehta et al. (11); Brar et al. (6); Ruthrich et al. (4); Lunski et al. (5); Tian et al. (10); Wang et al. (3); and Dai et al. (12)].

# What is the impact of ICI on patients with COVID?

- Theoretical Benefit
  - Increase T cell Responses
  - Decreased viral load
- Theoretical Risk
  - Increase in Inflammation

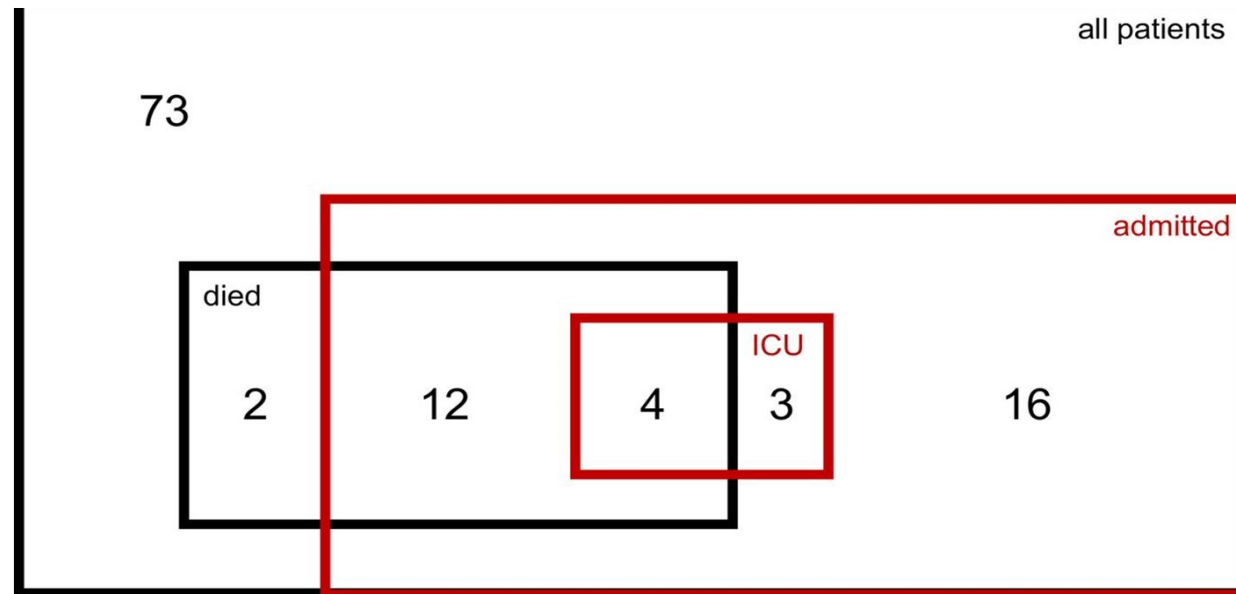


# COVID Patients on Immunotherapy

- Multicenter, retrospective, cohort study (19 centers, 9 countries)
- 110 adults with solid malignancy, ICI, confirmed SARS-CoV-2
- Patients who had received chemotherapy within 12 weeks were excluded

# COVID Patients on Immunotherapy

Venn diagram representing all patients (110), patients admitted to hospital (35), admitted to intensive care unit (ICU) (7) and patients who died (18).



Aljosja Rogiers et al. J Immunother Cancer 2021;9:e001931

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# Factors Associated with Increased Risk of Death

- North America versus Europe (HR 6.30, 95% CI 2.20 to 18.00,  $p=0.0006$ )
- Pre-existing kidney disease (HR 4.09, 95% CI 1.17 to 14.29,  $p=0.0271$ )
- ECOG  $\geq 2$  (HR 3.84, 95% CI 1.35 to 10.92,  $p=0.0115$ )
- Dyspnea (HR 3.49, 95% CI 1.24 to 9.84,  $p=0.0182$ )
- Lymphocyte count  $<1500/\text{mm}^3$  (HR 4.38, 95% CI 1.20 to 15.94,  $p=0.0250$ )
- CRP  $\geq 100$  mg/mL (HR 3.70, 95% CI 1.24 to 11.10,  $p=0.0194$ )
- Four (24%) out of 17 patients with lung cancer died in comparison with 5 (8%) out of 64 patients with melanoma (HR 3.81, 95% CI 1.02 to 14.27,  $p=0.0345$ ).

# COVID in Patients on ICI

- Preliminary data is reassuring
- Much to learn
- Several studies ongoing

# **The light at the end of the tunnel...Vaccines**

- Cancer patients have a higher risk of mortality
- Optimal schedules of vaccination and impact of therapy unknown



# SITC Recommendations

- All cancer patients receiving approved or investigational immunotherapy as part of their treatment regimen, either as standard of care or as part of clinical trials and without a general contraindication to vaccination, should/could receive an FDA approved and/or authorized SARS-CoV-2 vaccination when made available to them;
- At this point in time, the only known relevant contraindications based on available data are patient age as described within EUAs and/or history of anaphylaxis to similar/comparable vaccine components;
- SITC does not recommend experimental and/or non-approved SARS-CoV-2 vaccination for patients being treated with immunotherapy outside of dedicated clinical trial settings at this time;
- Immunosuppressed patients, e.g., those receiving corticosteroids or TNF blockers to manage immune-related side effects, patients with hematologic malignancies, or patients with B cell deficiency, may not mount a robust immune response against vaccines and/or may need additional booster vaccinations. SITC recognizes that this aspect has not yet been studied in clinical trials;
- Given limited data, SITC acknowledges that possible interactions between cancer immunotherapies and SARS-CoV-2 vaccines are unknown at this time. As always, SITC believes the best medical judgment of risk/benefit of SARS-CoV-2 vaccination should be considered for each patient individually.

# Preliminary Recommendations of the NCCN COVID-19 Vaccination Advisory Committee

- Patients with cancer should be prioritized for vaccination (CDC priority group 1b/c) and should be immunized when vaccination is available to them.
- Immunization is recommended for all patients receiving active therapy, with the understanding that there are limited safety and efficacy data in these patients.
- Reasons for delay of vaccines are similar to the general public (e.g., recent exposure to COVID-19), and cancer-specific factors. Vaccination should be delayed for at least 3 months following HCT or engineered cellular therapy (e.g. CAR-T cells) to maximize vaccine efficacy.
- Caregivers and household/close contacts should be immunized when possible.

# Questions and Discussion