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Outcome and prognostic factors of SARS CoV-2 infection in cancer patients: A cross-sectional study (SAKK 80/20 CaSA)

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DISCLOSURE INFORMATION

Our Institute receives Consultant/Advisory Fees from Novartis, Astra Zeneca, Basilea Pharmaceutica, Bayer, BMS, Debiopharm, MSD, Roche, Sanofi

Principal/Sub-Investigator of Clinical Trials for AstraZeneca, Basilea Pharmaceutica, Bayer, BMS, Daiichi Sankyo, Immunophotonics, Innomedica, Janssen, Lilly, MSD, Novartis, Intensity Therapeutics, Pfizer, Pharmamar, Roche, Sanofi, Takeda

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Background

- Controversy regarding the outcome of COVID-19 in cancer pts
- Some studies found a poorer outcome of COVID-19 in cancer versus non-cancer pts¹⁻³
- Negative consequences of the pandemic, incl. less cancer screening⁴, -diagnosis⁵, -treatment⁶
- COVID-19 mortality estimates in cancer pts between 14.6%⁷ and 36.6% (lung cancer)⁸
- We assessed COVID-19 outcome in cancer pts in a country severely affected by the pandemic

¹ Liang et al., Lancet Oncol, Vol 21 March 2020

² Mehta et al., Cancer Discovery 2020, Vol 10, Iss 7

³ Zhang et al., Ann Onc 2020, Vol 31, Iss 7, 894-901

⁴ <https://www.statnews.com/2020/05/04/cancer-screenings-drop-coronavirus-pandemic-epic/>

⁵ Dinmohamed et al., Lancet Oncol, April 30, 2020

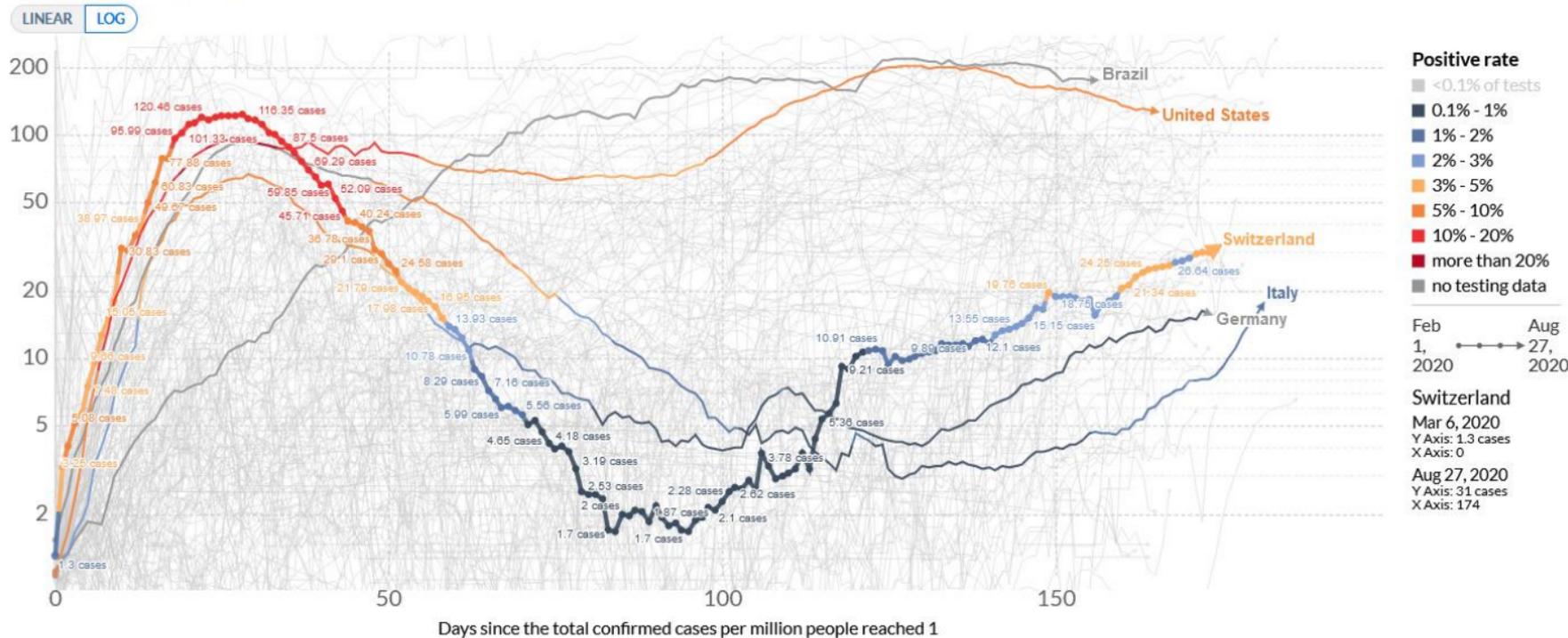
⁶ Wise, BMJ 2020;369

⁷ Barlesi et al., AACR virtual symposium, April 2020

⁸ Garassino et al., THERAVOLT initiative, ASCO 2020

Daily new confirmed COVID-19 cases per million people

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



Source: European CDC – Situation Update Worldwide – Last updated 27 August, 10:34 (London time), Official data collated by Our World in Data

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▶ Feb 1, 2020

○ Aug 27, 2020

Methodology

- Cohort study collecting data from symptomatic SARS-CoV-2 infected, adult cancer pts between March 1, 2020 and March 1, 2021
- Pts had lab-confirmed SARS-CoV-2 infection, or COVID-19 infection diagnosed by clinical and radiological findings
- 23 Swiss sites participated, covering the majority of the Swiss population
- We included pts with solid and hematological malignancies
- Primary objective: Assess the outcome of COVID-19 infection in Swiss cancer pts
- Main secondary objective: Define prognostic factors of COVID-19 outcome

Results: n=359 cancer pts with symptomatic COVID-19 as of Aug. 28, 2020

Diagnosis based on nasopharyngeal swabs (PCR+) in 339 cases (94.4%)

Patient characteristics	N	%
Gender (m/f)	213 / 146	59.3 / 40.7
Age 65+	213	59.3
Solid tumor / hematological malignancy	267 / 92	74.4 / 25.6
Breast / lung / prostate cancer / myeloma	63 / 41 / 24 / 15	17.5 / 11.4 / 6.7 / 4.2
Non-curative v. curative tumor disease	107 / 169	38.8 / 61.2
Systemic anticancer treatment within 3 months (Y/N)	186 / 173	51.8 / 48.2
Chemotherapy	68	18.9
Targeted agents	58	15.9
Steroids	37	10.3
Endocrine treatment	35	9.7
Checkpoint inhibitors	23	6.4
Comorbidity other than COVID-19 (Y/N)	283 / 76	78.8 / 21.2
Cardiovascular disease	178	49.6
Diabetes	44	12.3
Lung disease	43	12.0
Adipositas	38	10.6
Cachexia / malnutrition	27	7.5

Results: COVID-19 infection outcome

Term	N	%
Hospitalization for COVID-19 (Y/N)	229	64.5
Oxygen requirement (Y/N)	169 / 190	47.1 / 52.9
ICU admission (Y/N)	43 / 316	12.0 / 88.0
Invasive ventilation (Y/N)	31 / 328	8.6 / 91.4
COVID-19 mortality		
In all studied cancer pts	64 / 359	17.8
In hospitalized cancer pts	62 / 229	27.1
In cancer pts requiring oxygen	61 / 169	36.1
In cancer pts admitted to ICU	20 / 43	46.5
Specific treatment during COVID-19 (Y/N)	310 / 23	93.1 / 6.9
Antibiotics	155	46.5
Chloroquine	82	24.6
Antivirals	48	14.4
Steroids	37	11.1
Fungistatics	11	3.3
Tocilizumab	5	1.5

Multiple logistic regression model

Outcome = Death (yes/no), N = 273 complete observations, 46 deaths

Term	Odds ratio (95%CI)	P value
Intercept	0.03 (0.01 - 0.08)	0.000
ICU admission (Y v. N)	5.60 (2.23 - 14.05)	<0.001
Age (65+ v. 18-64)	4.68 (1.91 - 11.48)	0.001
Non-curative v. curative disease setting	2.52 (1.17 - 5.39)	0.018
Chemotherapy (Y v. N)	1.60 (0.73 - 3.51)	0.241
Tumor type (Hematologic v. Solid)	1.23 (0.53 - 2.85)	0.627
Gender (M v. F)	1.07 (0.53 - 2.19)	0.846

Significant univariable covariates: Age 65+, non-curative v. curative disease setting, ICU admission, oxygen therapy

Univariable logistic regression (outcome = death)

Important covariates **not significantly associated** with COVID-19 outcome

Term	Odds ratio (95%CI)	P value
Gender (M v. F)	1.64 (0.92 - 2.92)	0.093
Geographic region		
French v. German region	0.79 (0.43-1.47)	0.464
Italian v. German region	1.57 (0.74-3.32)	0.237
Systemic anticancer treatment within 3 months		
Chemotherapy	1.43 (0.75-2.73)	0.275
Immunotherapy	1.99 (0.78-5.07)	0.150
Comorbidity		
Cardiovascular disease	1.53 (0.78-3.02)	0.214
Lung disease	0.94 (0.39-2.27)	0.897

Conclusions

- COVID-19 mortality in Swiss cancer pts was higher than in the general population (17.8 v. 5%)
- Substantial rate of hospitalization (64.5%) and ICU admission (12.0%)
- Age 65+ and non-curative disease were strong negative prognostic factors
- Current or recent (< 3months) chemo or IO did not adversely affect COVID-19 outcome (neither did major categories of comorbidities)
- A decentralized health care system like CH had outcome data comparable to highly centralized systems like the UK or U.S.

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Patients and their families

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