LETTER TO THE EDITOR/
RESEARCH LETTER

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COVID-19 infection in patients with malignant diseases

COVID-19 infekcija kod onkoloških bolesnika

To the Editor:

A series of cases with pneumonia of unknown cause emerged in December, 2019 in Wuhan, Hubei, China. The clinical presentations greatly implied that it could be pneumonia of viral origin [1]. A total of 201 cases of pneumonia in China have been confirmed. On January 3, 2020, the Chinese scientists identified the first complete genome of the novel β genus coronaviruses (2019-nCoVs) in samples of bronchoalveolar lavage fluid (BALF) from a patient from Wuhan. Three distinct strains have been identified, the virus has been designated as 2019-nCoV [2], and infection caused by this virus as COVID-19 (Coronavirus disease-19).

Patients with cancer are more susceptible to infections than individuals without cancer because of their systemic immunosuppressive state caused by the malignancy itself and anticancer treatments, such as chemotherapy or surgery [3–5]. One of the first reported cohort of COVID-19 patients, showed that among them there was 1% of cancer patients. Lung cancer was the most frequent type being present in 5 of 18 patients (28%) [6].

In this study we present preliminary data of oncology patients found positive for COVID-19 within first 6 months of pandemic. All patients were treated in the University Clinical Center of the Republic of Srpska in Banja Luka. Main inclusion criteria were patients with diagnosis of any form of malignanat neoplasma (solid tumors and haematologic malignancies) with the COVID-19 diagnosis, laboratory confirmed using real time-polymerase chain reaction test (RT-PCR) test. We evaluated characteristics of the patients and diseases both for cancers and for COVID-19, as well as the correlation between potential prognostic factors and outcome.

Totally, 66 patients with cancer had a positive RT-PCR test for COVID-19. In average, patients had 67 years; there were 46 (69.70%) male and 20 (30.30%) female patients. The most common were hematological malignancies [n = 14 (21.2%)], gastrointestinal cancers [n = 12 (18.2%)], lung cancers [n = 9 (13.6%)], urological cancers [9 (13.6%)], breast cancer [7 (10.6%)], etc. There was 10 (15.20%) of the patients who received radiotherapy and 25 (37.90%) of the patients who recived chemotherapy within one month before COVID-19. Most of the patients were in the stage IV disease [32 (50.80%)], three of them were not available for staging evaluation and 13 (20.60%) of them were cancer survivors. Most of the patients (37.90%) had the Eastern Cooperative Oncology Group (ECOG) perforamance status 0. Severe complications of infection developed in 8 (12.10%) of the patients, moderate clinical course had 19 (28.80%) patients and mild clinical course had 39 (59.10%) of the patients. Sixteen (24.20%) of the patients died, others recovered from the virus infection. Data on post COVID-19 survivors (50 patients) were as follows: for 4 of them there were no data, 4 (8%) of the patients died two month after the infection, others were alive at the moment of data analysis. Thirty seven of 66 patients (56.10%) had cardiovascular comorbidity, diabetes melitus had 11 (16.7%) of the patients, 17 (25.80) of the patients had multiple comorbidities; no comorbidities had 19 (28.80) of the patients. Bivariate Pearson's analisys showed signifficant correlation beetwen cardiovascular comorbidity and death ($p = 0.019$). Also, there was a statistically signifficant correlation between severity of clinical course and age of patients as well as lethal outcome ($p < 0.01$). Most of deaths ocurred in patients with haematological malignancy and colorectal cancer. Two of nine patients with lung cancers died, and one death each was registered in breast cancer, sarcoma, ginecological and brain cancer patients. Most of haematooncology patients were in active treatment and had stage IV of the disease. All death associated with colorectal cancer were in patients with active oncological tratment.

In this initial report, mortality among cancer patients was higher than in general populations of infected patients (24.20%). An early report of a subset of patients who died from COVID-19 in Italy found that 20.3% of the deceased had an active cancer. All of this underlines the increased risk for cancer patients, particularly lung cancer patients [7]. The TERAVOLT study showed that mortality rate in the thoracic cancer patients was 33% [8]. The Institute Gustave Roussy reported data on 137 COVID-19 oncology patients. After admission, 25% of the patients had worsening, 11% were

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admitted to an intensive care unit and 15% died. Hematooncology patients were more likely to have worse outcomes. In the continuation of the study, it was shown that treatment with chemotherapy within three months, but not targeted therapy or immunotherapy, doubled the chance of worsening disease [9]. According to our center experience, chemotherapy and radiotherapy did not affect survival in patients with COVID-19, although the number of patients was small for definitive analysis. It is important to notice that patients with colorectal cancer who died from COVID-19, were in the active treatment. Patients with haematological malignancies had most cases and most deaths. Also, we can not say that comorbidities such as cardiovascular diseases and multiple comorbidities appear as predictors for poor outcomes in our patient population, because they are associated with increased risk of death in the general population, too. We must also take into account that average age of our patients was 67, they had cancer diagnosis alone or associated with comorbidities, they continously were in a state of imunosupression either due to the cancer itself or due to specific oncological therapy.

In summary, cancer patients are at high risk of complications if infected with coronavirus, both directly and indirectly due to treatment interruption. We must provide the continuation of oncological treatments (surgical, chemotherapy, radiotherapy etc.) without delay.

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