Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

disease with an incidence of 1:100,000. AIP diagnosis is based on the HISORt criteria: histology (more than 10 IgG4-positive cells), imaging test, serology with IgG4 elevation ≥2 times the upper limit of normality, extrapancreatic manifestations and response to steroid treatment.[2,3] In our case, the initial imaging tests made us think of AIP, however the histology was not compatible and there was no response to steroids.

Gastrointestinal tract lymphomas are not uncommon, especially at the gastric and small intestine and most of them are line B non-Hodgkin lymphomas. Burkitt's Lymphoma (BL) is an aggressive lymphoma characterized by the *c-myc* gene dysregulation and presents itself in three variants: endemic, immunodeficiency-related and sporadic. The latter it is more frequently diagnosed in young patients with an abdominal mass. The EUS-guided puncture is the first choice technique and histology shows atypical lymphoid cells, with a "starry-sky" appearance with positive markers for CD19 and CD20. In our case, the sample obtained by EUS was artifacted, so finally the percutaneous biopsy with a needle of 18G was key in the diagnosis, demonstrating the markers and typical cellularity of BL.[4,5]

This case emphasizes the need to obtain a representative sample for the differential diagnosis of a pancreatic mass. Radiological and laboratory findings alone are not enough for diagnosis, and histology is essential for targeted therapy. To our knowledge, this is the first case published of BL in an immunocompetent patient who debuted in the form of bone lesion and acute pancreatitis.

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Conflict of interest

Authors declare not to have any conflict of interests that affects their impartiality.

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References

1. Henley SJ, Ward EM, Scott S, Ma J, Anderson RN, Firth AU, et al. Annual report to the nation on the status of cancer, Part I: National cancer statistics. Cancer. 2020, http://dx.doi.org/10.1002/cncr.32802.
2. Akshintala VS, Singh VK. Management of autoimmune pancreatitis. Clin Gastroenterol Hepatol. 2019;17:1937–9, http://dx.doi.org/10.1016/j.cgh.2019.04.052.
3. Okazaki K, Chari ST, Frulloni L, Lerch MM, Kamisawa T, Kawa S, et al. International consensus for the treatment of autoimmune pancreatitis. Pancreatology. 2017;17:1–6, http://dx.doi.org/10.1016/j.pan.2016.12.003.
4. Saleh K, Michot JM, Camara-Clayette V, Vassetsky Y, Ribrag V. Burkitt and Burkitt-like lymphomas: a systematic review. Curr Oncol Rep. 2020;22:33, http://dx.doi.org/10.1007/s11912-020-0898-8.
5. Federico E, Falconi M, Zuodar G, Falconieri G, Puglisi F. B-cell lymphoma presenting as acute pancreatitis. Pancreatology. 2011;11:553–6, http://dx.doi.org/10.1159/000332038.

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Effect of adding bemiparin and cefepime to routine treatment in cancer patients with SARS-CoV-2 infection

Efecto de la adición de bemiparina y cefepime al tratamiento habitual en el paciente oncológico con infección por SARS-CoV-2

Dear Editor:

Oncology patients are more vulnerable to the 2019 coronavirus disease (COVID-19), with greater in-hospital mortality rates being recorded among them compared with other types of patients. The possible causes of this could be their increased plasma levels of tumor necrosis factor alpha (TNF-α) and interleukin 6 (IL-6) secondary to the neoplastic cachexia process and the prothrombotic state inherent to cancer.[1]

In this study we present our experience with hospitalized oncology patients with COVID-19, focusing on factors associated with their survival and the effect of the different treatments administered. In this last regard, we would like to highlight the use of bemiparin at a dose of 5000 IU as a treatment used to counteract the prothrombotic neoplastic stage, and of cefepime at a dosage of 2 g/8 h due to the potential anti-bradykinin activity of this molecule.

Our patient cohort was formed by 33 patients with a median age of 60–70 years, of whom 75.76% were men. The majority (78.79%) of these patients had a stage IV tumor. The most prevalent type of neoplasm in our patient cohort was lung cancer (27.27%).

Mortality among hospitalized oncology patients with COVID-19 was 70%. This rate dropped to 55.6% among patients treated with monoclonal antibodies (tocilizumab or anakinra). A total of eight patients of our cohort were treated from the time of admission with bemiparin at a dose of 5000 IU and cefepime at a dosage of 2 g/8 h as empirical antibiotic therapy. The mortality rate dropped to 37.5% among these patients. The causes of death of the COVID-19 patients who were admitted to our care were respiratory distress secondary to parenchymal lung damage (57.14%), neurological presentations of the infection (14.29%), and acute pulmonary embolism and/or multiorgan failure in the rest of cases.

The data collected from our patient cohort was subjected to a statistical analysis using software SPSS 22, applying a multivariate analysis model to eliminate potential confounding factors. The factors evaluated were use of remdesivir, tocilizumab, or anakinra; pulses of methylprednisolone; and a combination of bemiparin 5000 IU and cefepime. The covariates considered were sex, age, type of tumor, and tumor stage. The mortality rate was considered a dependent variable.

Nagelkerke's R^2 was 0.964, therefore indicating that 96.4% of the variability in the mortality rates could be explained by the variables included in the study. Application of the multivariate

model demonstrated statistical significance ($p < 0.05$) for covariates age (higher mortality at older ages), sex (higher male mortality), and type of cancer (higher mortality with lung and gastro-biliary-pancreatic tumors), but no significance for the tumor stage. As for the interventions, the only two that yielded statistical significance were the use of a combination of bemiparin 5000 IU+ cefepime and the use of monoclonal antibodies (tocilizumab or anakinra). According to this model, the use of methylprednisolone pulses and remdesivir were not statistically significant.

The higher mortality associated with lung and gastro-biliary-pancreatic tumors is likely associated with the cachetizing nature of those tumors. Patients with these tumors have increased circulating levels of TNF-α, which could cause hyperinflammatory reactions to be more severe.[2]

The rationale of the use of cefepime in patients admitted for COVID-19 is based on the findings of several studies, such as that carried out by Roche et al.,[3] who claimed that the bradykinin cascade plays a fundamental role in pulmonary angioedema induced by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the activation of several inflammatory mediators. According to the results of a virtual screening study performed by Rasaeifar et al.,[4] cefepime could have bradykinin receptor antagonist activity, which is why we used it as an empirical antibiotic therapy instead of another cephalosporin. Further studies with a greater number of patients should be carried out to confirm these findings.

References

1. Horowitz N, Brenner B. Thrombosis and hemostasis issues in cancer patients with COVID-19. Semin Thromb Hemost. 2020;46:785–8.
2. Wang X, Lin Y. Tumor necrosis factor and cancer, buddies or foes? Acta Pharmacol Sin. 2008;29:1275–88.
3. Roche J, Roche R. A hypothesized role for dysregulated bradykinin signaling in COVID-19 respiratory complications. FASEB J. 2020;34:7265–9.
4. Rasaeifar B, Gomez-Gutierrez P, Perez J. Molecular features of non-selective small molecule antagonists of the bradykinin receptors. Pharmaceuticals (Basel). 2020;13:259.

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