



Clinical report

Down's syndrome, breast cancer and COVID-19

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ABSTRACT

The incidence of cancer in children and adults with Down's syndrome has a clearly differentiated presentation pattern with a higher frequency of lymphomas and leukaemias and a lower frequency of solid tumours. The incidence of breast cancer has especially decreased. In our setting, COVID-19 mortality in cancer patients has greatly increased. We present the case of a patient with Down's syndrome, breast cancer and COVID-19.

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Síndrome de Down, cáncer de mama y COVID-19

RESUMEN

La incidencia de cáncer en niños y adultos con síndrome de Down tiene un patrón de presentación claramente diferenciado, con mayor frecuencia de linfomas y leucemias y menor de tumores sólidos. La incidencia de cáncer de mama está especialmente disminuida. En nuestro medio, la mortalidad por COVID-19 en pacientes con cáncer está incrementada sobremanera. Presentamos el caso de una paciente con síndrome de Down, cáncer de mama y COVID-19.

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Palabras clave:

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The incidence of breast cancer (BC) in people with Down syndrome (DS) is much lower than in the general population.¹ The prognosis for COVID-19 is more severe in cancer patients.² What happens when Down syndrome, breast cancer and COVID-19 are associated?

We present the case of a 38-year-old premenopausal woman with DS with intellectual disability with moderate cognitive impairment with language difficulties but without any other significant congenital or acquired pathology related to DS. In February 2019, she was diagnosed with invasive ductal carcinoma, poorly differentiated, oestrogen and progesterone receptor positive, and Her 2 positive. A right axillary sentinel lymph node biopsy and lumpectomy was performed. Pathological stage, pT1c (1.5 cm), N1mi (sn). After surgery she received adjuvant treatment with weekly paclitaxel for 12 weeks and subcutaneous trastuzumab

every 3 weeks for 1 year. After finishing paclitaxel, the patient started ovarian function suppression plus letrozole. The patient has also received treatment with adjuvant radiotherapy on the right breast and ipsilateral axillary and supraclavicular.

On March 15, 2020, she went to the emergency room for fever of up to 39 °C at home and with an increase in the frequency of stools, with no pathological products. She did not report cough or dyspnoea. On physical examination, she presented sinus tachycardia (>100 beats per minute) and 92% oxygen saturation. Lymphopenia, 500 cells per mm³ (normal > 1100) and C-reactive protein elevation 17.4 mg/l (normal > 5) was found in the initial analysis. D-dimer was not initially measured. Chest radiography showed bilateral alveolar opacities and consolidation in the right lower lobe. Positive PCR (Polymerase Chain Reaction) from nasopharyngeal exudate confirmed COVID-19. The local protocol for COVID-19 was activated, and the patient was treated with oxygen, lopinavir/ritonavir, hydroxychloroquine, bemiparin and ceftriaxone. The patient presented favourable clinical and radiological evolution, being discharged 9 days after admission, followed up

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by hospitalization at home until March 30, 2020. Recovery has been complete with no apparent sequelae.

The incidence of cancer in children and adults with DS has a clearly different presentation pattern with the general population. The study by Hasle et al.¹ published in 2016 compares cases of hematologic malignancies and solid tumours in Denmark among the general population and a cohort of 3530 people with DS by calculating the standardized incidence ratio (SIR) with 95% confidence intervals (95% CI). The global risk of cancer does not differ between groups but the distribution pattern does with more frequency of lymphomas and leukemias in people with DS (SIR 5.5; 95% CI: 4.2–7.1), and lower frequency of solid tumours than expected (SIR 0.45; 95% CI 0.34–0.59). The risk is lower in all types except testicular tumours (SIR 2.9; 95% CI: 1.6–4.8) and is especially decreased in BC (SIR 0.16; 95% CI 0.03–0.47).

Humanity is currently facing the challenge of a new infectious disease detected for the first time in the Chinese city of Wuhan (Hubei province) officially called COVID-19 and caused by a new type of coronavirus, the SARS-CoV-2 virus.³ On March 11, 2020, the World Health Organization declared it a pandemic.⁴ Until now there is no information that allows us to adequately characterize the disease in patients with DS. There is only one publication of 4 cases in Belgium and its authors conclude a probable increase in the severity of the infection.⁵

In our hospital in Madrid, Spain, COVID-19 mortality in cancer patients is greatly increased. During the first 3 weeks of the epidemic, the number of cases with COVID-19 confirmed by PCR was 1069 in the general population with 132 deaths (12.3%). A history of cancer in the last 5 years or with active cancer was present in

36 patients representing 3.4% of confirmed cases, and 15 of the 36 cancer patients died from infection (41.6%).² Of the 36 cases, 5 (13.8%) were women with BC years and fortunately none died.

Our patient, whose infection was associated with pneumonia, had a favourable evolution, as did the rest of the patients with BC in our small series. However, the association of two possible risk factors for a severe course of COVID-19, a history of cancer and Down syndrome, makes it essential to protect this group of vulnerable people maximizing protection measures and social distancing, avoiding this way the infection and a possible serious or fatal course.

Conflict of interest

The authors declare that they have no conflict of interest.

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