

LETTER TO THE EDITOR

A collateral effect of the COVID-19 pandemic: Delayed diagnosis in pediatric solid tumors

To the Editor:

The COVID-19 pandemic has become a huge health emergency. In the world of pediatric oncology, we have had to profoundly modify our habits regarding the management of patients and their families. We have had to focus on minimizing the risk of the virus spreading within the hospital while ensuring the best possible management of cases found positive for COVID-19 and, above all, on assuring our children and adolescents that they will receive the oncological care they need.¹⁻⁴ Meanwhile, during the 8-week lockdown imposed in Italy to cope with the peak of the epidemic, we noted a reduction in the number of pediatric tumors being newly diagnosed, probably reflecting delayed access to health care services for patients with signs and symptoms suspected of being cancer-related.¹

Now, with the gradual decrease in the number of new coronavirus infections and related deaths, and the end of Italy's lockdown (for now), we have examined the delay in the diagnosis of patients coming to our Pediatric Oncology Unit of the Istituto Nazionale Tumori, Milan, a referral center for pediatric solid tumors not only for Lombardy (the epicenter of the COVID-19 epidemic in Italy), but for the whole of Italy.

Firstly, we found that during the lockdown period (from March 9 to May 3, 2020), we registered 16 newly diagnosed patients. It is of note that during the same period in the years 2017, 2018, and 2019, we had registered 34, 35, and 36 cases, respectively. Therefore, under lockdown, we observed only 45.7% of the expected cases (Fisher exact test P -value .0416).

We also considered our patients' regions of provenance, bearing in mind that, judging from data collected for the whole year of 2019, we would have expected 74% of our patients to come from northern Italy, 5% from central Italy, 18% from southern Italy, and 3% from abroad. Among the 16 cases seen during the lockdown period, all but two of them were from Lombardy (the region where our center is located).

Assuming that any drop in the diagnostic rate might be followed by a rebound, we then analyzed the number of new cases diagnosed in the subsequent 8-week period (from May 4 to June 28, 2020). As shown in Table 1, in the 8-week postlockdown period, we registered 37 new cases; eight of them (22%) coming from central and southern Italy.

Certainly, this is only the picture for our center (a regional and national reference center for the treatment of pediatric solid tumors), and we do not know if the missing patients went elsewhere. However, it is plausible that the drop to half the number of new diagnoses may be a collateral effect of the COVID-19 pandemic. Several publications have already reported inadequate access to care and consequent delay in the diagnosis of cancer patients (adults and children) during this emer-

TABLE 1 Cases of pediatric solid tumor newly diagnosed during the 8-week lockdown and during the subsequent 8 weeks

Period	March 9-May 3, 2020 (lockdown)	May 4-June 28, 2020
Newly diagnosed cases	16	37
Age	3-24 years (median 10 years)	1 month-24 years (median 11 years)
Region of provenance		
Northern Italy	14 ^b	29
Central Italy	0	3
Southern Italy	2	5
Tumor type ^b		
CNS tumors	5	10
Bone/soft tissue sarcomas	6	8
Lymphomas	1	2
Others	4	17
Stage:		
M0	13	31
M1	3	6

Abbreviations: CNS, central nervous system; M0, without metastases; M1, with metastases.

^aFrom Lombardy (Milan region).

^bOur center only treats solid tumors.

gency period.⁵⁻¹² The travel restrictions imposed by lockdown measures (including visits to hospitals and travel between different regions) represented a barrier to access to medical care, including access to emergency rooms and specialist visits in the event of suspicious signs and symptoms. Objective logistic difficulties were also compounded by the fear of contagion at a time when hospitals were at risk of spreading the disease. Hospitals came to be seen no longer as places offering protection and treatment, but as a possible source of infection.

Assuming that families were scared of going to hospitals when mild symptoms developed under lockdown, we might have expected to see a rebound with a higher incidence of new cases, as soon as the lockdown was lifted. Albeit with the limitation of the small sample size, our analysis indicates instead that the numbers of new cases are back in line with expectations based on previous years. For the time being, there seems to have been no excessive increase in the number of cases, though it may be too early to say for sure. In fact, traveling between








Italy's regions was still limited for weeks after the full lockdown measures were lifted, and the population has remained fearful of the virus even now that the situation appears to be more or less under control.

As an additional evaluation, we have examined the symptom interval in the postlockdown cohort of patients, comparing the figures with those of historical studies in the pediatric oncology patient population.¹³⁻¹⁵ No major findings emerged; if anything, the patient delay seems to have been longer in the postlockdown series, as if the time it took patients or families to decide to see a doctor increased (Table S1). This finding makes it important to continue monitoring the numbers of new diagnoses and any diagnostic delays (and how much this may ultimately pose a problem in terms of a disease's presentation and a patient's chances of cure).

In short, albeit with all the limitations relating to the small sample size and the preliminary nature of this analysis, our study suggests that a possible collateral effect of the COVID pandemic to bear in mind is the reduced likelihood of pediatric cancer patients accessing referral centers, and their consequently worse chances of a timely diagnosis.

ACKNOWLEDGMENTS

The authors wish to thank the Associazione Bianca Garavaglia, Busto Arsizio, and the LILT (Lega Italiana per la Lotta contro i Tumori), Milano.

Stefano Chiaravalli
 Andrea Ferrari 
 Giovanna Sironi
 Giovanna Gattuso
 Luca Bergamaschi 
 Nadia Puma
 Elisabetta Schiavello
 Veronica Biassoni
 Marta Podda
 Cristina Meazza 
 Filippo Spreafico 
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SUPPORTING INFORMATION

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