

Mediastinal lymphadenopathy on admission is associated with prognosis in COVID-19 patients: multicentre data on 410 patients

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Xavier Valette and colleagues¹ reported a high (60%) prevalence of mediastinal lymphadenopathy in 15 COVID-19 patients admitted to intensive care unit (ICU), an eleven-fold discrepancy with systematic reviews reporting pooled prevalence of 3·4%² and 5·4%³. This topic deserves discussion, especially considering that limited sample sizes imply large confidence intervals.

We reviewed 410 COVID-19 patients (288 males, median age 68 years, IQR 57–78) who underwent CT at emergency department (ED) admission in three hospitals in Lombardy, Italy (Fondazione Poliambulanza Istituto Ospedaliero, Brescia; ASST Crema, Ospedale Maggiore, Crema; ASST Santi Paolo e Carlo, Ospedale San Paolo, Milano), from February 21 to March 18, 2020, during the pandemic peak. We found 76 patients with mediastinal lymphadenopathies greater than one cm, resulting into an 18·5% prevalence (95% CI 15%–22%).

Our CT examinations were performed at ED admission, while Valette's data¹ derive from ICU patients. Thus, our lower lymphadenopathy prevalence could be explained by a lower rate of patients requiring ICU admission during hospitalization (60/410, 15%). However, of these 60 patients, only 15 had lymphadenopathies at ED admission (25%, 95% CI 16%–36%)

Valette and colleagues¹ hypothesized that disease severity could probably explain the discrepancy found between previous data and their ICU population. After applying the Bonferroni correction for multiple comparisons in our series of patients (obtaining a p value threshold of 0·003), we found no significant differences between patients with and without lymphadenopathies in terms of sex, age, oncological history, non-invasive ventilation or ICU admission during hospitalization, length of hospital stay, laboratory findings, and CT features such as parenchymal involvement and disease progression, both assessed according to the classification by Bernheim and colleagues⁴ (Table 1). However, lymphadenopathies at admission were significantly more frequent in patients which exhibited a crazy paving pattern at CT and in patients who died during hospitalization than in those discharged.

Despite invasive microbiological samples were not available for our patients (so we cannot exclude bacterial or fungal coinfections), our lymphadenopathy prevalence was lower than that reported by

Valette and colleagues¹ but three-fold higher than those reported in other populations.^{2,3,5} We therefore agree in defining lymphadenopathy as a “not-atypical” feature of COVID-19. Furthermore, our data play in favour of considering lymphadenopathy as a predictor of worse outcome. The pathophysiological meaning of this finding in relation with host response to virus infection and the possibility to exploit this information in clinical management of COVID-19 patients remains to be investigated.

Table 1: Demographic, clinical, laboratory, and CT findings on admission

	Patients with lymphadenopathies (n=76)	Patients without lymphadenopathies (n=334)	p value
Demographic and clinical findings			
Sex	59 M / 17 F	229 M / 105 F	0·119
Median age (years)	70 (IQR 63–79)	68 (IQR 56–78)	0·150
Any cancer history	3/36	25/289	0·949
Non-invasive ventilation during hospitalization	45/76	154/334	0·039
Intensive care unit admission during hospitalization	15/76	45/334	0·163
Median days of hospitalization	7 (IQR 5–13)	8 (4–14)	0·934
Death	37/76	99/334	0·001
Laboratory findings			
Median PaO ₂ (%)	61 (IQR 49–70) ^a	63 (IQR 53–73) ^b	0·060
White blood cell count (×10 ³ per μl)	7·9 (IQR 5·1–9·5) ^c	6·3 (IQR 4·7–8·8) ^d	0·132
Lymphocyte count (×10 ³ per μl)	1·0 (IQR 0·7–1·3) ^c	1·0 (IQR 0·7–1·4) ^d	0·747
CT features			
Median parenchymal involvement ^e	2 (IQR 1–3)	2 (IQR 1–2)	0·008
Median disease progression ^e	3 (IQR 2–3)	2 (IQR 2–3)	0·073
Bilateral lung involvement	71/76	314/334	0·846
Pleural effusion	9/76	18/334	0·041
Crazy paving pattern	33/76	73/334	<0·001

All data were acquired on admission unless otherwise specified; p values were calculated with the Mann–Whitney *U* test or the χ^2 test, as appropriate.

^a data available for 66 patients

^b data available for 307 patients

^c data available for 36 patients

^d data available for 293 patients

^e according to the classification by Bernheim and colleagues⁴

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Authors' contributions

Francesco Sardanelli and Andrea Cozzi: equal contribution in literature search, conceptualization, general project supervision, data collection, analysis, and interpretation, writing and revision of the manuscript.

Lorenzo Monfardini: data collection and project administration at Center 1 (Fondazione Poliambulanza Istituto Ospedaliero, Brescia, Italy), writing and revision of the manuscript.

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Francesco Secchi: data analysis and interpretation, general project administration, writing and revision of the manuscript.

Simone Schiaffino: data analysis and interpretation, general project administration, writing and revision of the manuscript.

All authors read and approved this submitted version of this manuscript.

Conflict of interest statements

A. Cozzi, L. Monfardini, C. Bnà, R.A. Foà, A. Spinazzola, S. Tresoldi, M. Cariati, and F. Secchi, all declare that they have no conflict of interest and that they have nothing to disclose.

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