Erratum to long-term chest CT follow-up in COVID-19 Survivors: 102–361 days after onset

Editorial Office

Annals of Translational Medicine

Correspondence to: Editorial Office. Annals of Translational Medicine. Email: editor@atmjournal.org.

Erratum to: Ann Transl Med 2021;9:1231

In the article (1) entitled "Long-term chest CT follow-up in COVID-19 Survivors: 102–361 days after onset" (doi: 10.21037/atm-21-1438), the text below in the format of HTML and XML are correct while the text in PDF format in page 5 after Table 1 were misplaced due to a typesetting error.

The paragraphs circled in red below (*Figure 1*) should be placed in page 8 after Table 3 and before the text "absorbed by 3 months after disease onset" in the PDF format (*Figure 2*).

Table 1 Comparison of patient characteristics and clinical data between survivors with and without dyspnea

	All survivors (n=337)	Without dyspnea (n=246)	With dyspnea (n=91)	χ^2/t/Z	P value
Age (y)	53.51±14.82	51.60±15.47	58.68±11.47	−3.789	<0.001
Sex					
Male	170 (50.45%)	113 (45.93%)	57 (62.64%)	7.413	0.006
Female	167 (49.55%)	133 (54.07%)	34 (37.36%)		
Smokers	24 (7.12%)	16 (6.50%)	8 (8.79%)	0.525	0.469
Comorbidities	0.42±0.63	0.37±0.57	0.57±0.76	−1.975	0.048
Hospital stays	29.62±15.78	26.85±12.37	37.12±20.88	−4.399	<0.001
Time from onset to follow-up	203.37±52.65	200.67±52.07	210.67±53.79	−1.605	0.109
Treatment modalities					
Hormone administration	187 (55.49%)	118 (47.97%)	69 (75.82%)	20.870	<0.001
Immunoglobulin injection	151 (44.81%)	96 (39.02%)	55 (60.44%)	12.319	<0.001
Lianhua Qingwen capsule (Chinese medicine)	157 (46.59%)	117 (47.56%)	40 (43.96%)	0.347	0.556
Antiviral therapy (arbidol)	300 (89.02%)	217 (88.21%)	83 (91.21%)	0.611	0.435
ICU admission	12 (3.56%)	4 (1.63%)	8 (8.79%)	7.954	0.005
Mechanical ventilation	27 (8.01%)	8 (3.25%)	19 (20.88%)	28.005	<0.001
Selected laboratory parameter					
Peak CRP (mg/L)	52.71±73.33	34.57±44.63	101.76±106.42	−7.413	<0.001
Peak LDH (U/L)	294.19±112.14	267.24±84.03	367.05±142.73	−6.680	<0.001
Peak D2-polymer (ug/mL)	2.42±4.14	1.76±2.99	4.23±5.92	−5.340	<0.001
Peak calcitonin level (ng/mL)	0.28±1.33	0.12±0.27	0.72±2.47	−5.196	<0.001
Peak neutrophil count (10^9/L)	6.64±4.30	5.69±3.38	9.21±5.35	−6.445	<0.001
Minimum lymphocyte count (10^9/L)	0.95±0.47	1.05±0.47	0.68±0.37	−6.969	<0.001
Clinical classification					
Mild or moderate	294 (87.24%)	233 (94.72%)	61 (67.03%)	45.730	<0.001
Severe or critical	43 (12.76%)	13 (5.28%)	30 (32.97%)		

ICU, intensive care unit; CRP, C-reactive protein; LDH, lactate dehydrogenase.

large pulmonary vessel thrombi in COVID-19 (29,30). The observations that COVID-19 can cause an increase in D2-polymer and small vessel embolism has a limited effect on lung function may explain why no cases of pulmonary embolism were confirmed during hospitalization.

CT findings, including a crazy-paving pattern, consolidation, consolidation as the main CT finding, and lesion volume, were significantly reduced at discharge compared with during the peak period, reflecting lesion absorption. The above parameters, as well as GGOs and reticulations, were further significantly reduced during follow-up compared with at discharge. A previous study showed that only 9% of COVID-19 survivors were free of residual disease after three months, but another study showed that 57.7% of survivors had no lesions on follow-up CT after a three-month interval (7,15). Our results showed that 44.21% of the survivors had no lesions at follow-up and that survivors with residual lesion rates greater than 10% accounted for only 15.43% of the study population, indicating that most of the lesions had been

Figure 1 The text highlighted are misplaced.

Table 3 Comparisons of follow-up CT findings between survivors at less than 4 months and more than 4 months after discharge

Follow-up CT findings	Within 6 months after discharge (n=172)	More than 6 months after discharge (n=165)	P
GGO	63 (36.63%)	51 (30.91%)	0.267
Crazy-paving pattern	16 (9.30%)	12 (7.27%)	0.500
Reticulation	83 (48.26%)	76 (46.06%)	0.687
Consolidation	4 (2.33%)	8 (4.85%)	0.212
Main CT finding			
GGO	34 (19.77%)	23 (13.94%)	0.154
Crazy-paving pattern	5 (2.91%)	6 (3.64%)	0.706
Consolidation	4 (2.33%)	6 (3.64%)	0.698
Reticulation	56 (13.37%)	42 (25.45%)	0.151
Bronchiolectasis	23 (13.37%)	24 (14.55%)	0.756
Distribution of lung lesions			
Subpleural	84 (48.84%)	60 (36.36%)	0.021
Random	8 (4.65%)	9 (5.45%)	0.736
Diffuse	7 (4.07%)	8 (4.85%)	0.729
Pleural thickening	6 (3.49%)	5 (3.03%)	0.813
Lung lesion volume (cm^3)	57.38±165.11	50.63±150.81	0.102
Residual lesion rate (%)	7.80±15.43	5.81±13.20	0.026

CT, computed tomography; GGO, ground-glass opacity.

absorbed by 3 months after disease onset. Among the main CT findings, reticulations were significantly increased at discharge and further significantly increased at follow-up. We found that the rate of survivors with reticulations was significantly reduced at follow-up, whereas that of survivors with reticulation as the main CT finding was significantly increased at follow-up. This difference may be due to the fact that other lesions are relatively easy to absorb, thus leaving only reticulations; alternatively, it may be that reticulations are representative of lesions in the late stage in some survivors. Previous short-term follow-up studies have suggested that reticulations are indicative of fibrosis (31-33). However, our results showed that nearly half of the reticulations observed on CT at discharge were absorbed during follow-up, suggesting that not all reticulations represent true fibrosis. Approximately one-quarter of survivors had bronchiolectasis during the peak period and at discharge; the frequency significantly decreased to approximately one in eight at follow-up. We observed that bronchiolectasis was most obvious at discharge and then recovered significantly during follow-up as lesion volume

significantly reduced. A small number of patients showed pleural effusion and enlarged mediastinal lymph nodes, consistent with previous reports (34). *Table 3* shows that among the CT parameters, only the residual lesion rate and rate of subpleural distribution were significantly decreased at more than 6 months after discharge compared with less than 6 months after discharge. This indicates that the lesions were still being absorbed more than 6 months after discharge. Moreover, GGOs continued to be observed on CT images in 30% of the survivors more than 6 months after discharge; these lesions may be absorbed over time.

The rates of reticulation as the main CT finding at discharge and at follow-up were significantly higher among survivors with dyspnea than survivors without dyspnea, which is consistent with long-term follow-up results in SARS patients (22,26). These results may have been obtained because survivors with dyspnea have larger lesions that are incompletely absorbed at discharge and at follow-up, and chest CT showed more reticulations in these survivors. The rate of bronchiolectasis in survivors with dyspnea was significantly higher than that in survivors without dyspnea at

Figure 2 The misplaced text in *Figure 1* should be moved to the place indicated in red box.

Click here to view the updated version of the article.

References

1. Yin X, Xi X, Min X, et al. Long-term chest CT follow-up in COVID-19 Survivors: 102–361 days after onset. Ann Transl Med 2021;9:1231.

Cite this article as: Editorial Office. Erratum to long-term chest CT follow-up in COVID-19 Survivors: 102–361 days after onset. Ann Transl Med 2022;10(9):532. doi: 10.21037/atm-2022-2