Radio CovILD, 1-year follow-up

Tables and figures

CovILD study team

2021-12-31

# Tables

**Table 1:** Baseline characteristic of the cohort.

| **Variable** | **Statistic, n = 91** |
| --- | --- |
| Age | mean(SD) = 59 (13) median(IQR) = 57 (51 - 70) range = 20 - 89 |
| Age1 | up to 60: 59% (54) >60: 41% (37) |
| Sex1 | male: 62% (56) female: 38% (35) |
| BMI12 | normal: 37% (34) overweight: 43% (39) obesity: 20% (18) |
| PKY13 | 0: 66% (60) 1–10: 13% (12) 11-20: 9.9% (9) >21: 11% (10) |
| Smoking1 | never: 66% (60) ex: 34% (31) |
| Severity1 | mild: 21% (19) moderate: 25% (23) severe: 25% (23) critical: 29% (26) |
| 1percentage of the cohort (n individuals) | |
| 2body mass index, kg/m², overweight: > 25 kg/m², obesity: > 30 kg/m² | |
| 3packages per year | |

**Table 2:** Lung CT features in the entire cohort at the consecutive follow-up visits.

| **Variable** | **2-month FUP1** | **3-month FUP1** | **6-month FUP1** | **1-year FUP1** | **Significance2** |
| --- | --- | --- | --- | --- | --- |
| Any abnormalities | 76% (58) complete: n = 76 | 63% (54) complete: n = 86 | 67% (47) complete: n = 70 | 54% (49) complete: n = 91 | p = .024 |
| Moderate-severe abnormalities | 54% (41) complete: n = 76 | 36% (31) complete: n = 86 | 27% (19) complete: n = 70 | 20% (18) complete: n = 91 | p < .001 |
| Severe abnormalities | 33% (25) complete: n = 76 | 16% (14) complete: n = 86 | 8.6% (6) complete: n = 70 | 8.8% (8) complete: n = 91 | p < .001 |
| Any opacity | 77% (59) complete: n = 77 | 66% (57) complete: n = 86 | 66% (47) complete: n = 71 | 46% (42) complete: n = 91 | p < .001 |
| Any high opacity | 68% (52) complete: n = 77 | 56% (47) complete: n = 84 | 31% (22) complete: n = 71 | 29% (26) complete: n = 91 | p < .001 |
| GGO3 | 74% (56) complete: n = 76 | 58% (50) complete: n = 86 | 56% (39) complete: n = 70 | 44% (40) complete: n = 91 | p = .0018 |
| Reticulation | 58% (44) complete: n = 76 | 52% (45) complete: n = 86 | 56% (39) complete: n = 70 | 43% (39) complete: n = 91 | ns (p = .21) |
| Consolidation | 13% (10) complete: n = 76 | 7% (6) complete: n = 86 | 1.4% (1) complete: n = 70 | 1.1% (1) complete: n = 91 | p = .0024 |
| Bronchial dilatation | 11% (8) complete: n = 76 | 7% (6) complete: n = 86 | 8.6% (6) complete: n = 70 | 8.8% (8) complete: n = 91 | ns (p = .89) |
| Crazy paving | 1.3% (1) complete: n = 76 | 0% (0) complete: n = 84 | 0% (0) complete: n = 70 | 0% (0) complete: n = 91 | ns (p = .36) |
| ARDS pattern4 | 0% (0) complete: n = 76 | 0% (0) complete: n = 84 | 0% (0) complete: n = 70 | 0% (0) complete: n = 91 |  |
| OP5 | 7.9% (6) complete: n = 76 | 7.1% (6) complete: n = 84 | 2.9% (2) complete: n = 70 | 0% (0) complete: n = 91 | p = .039 |
| Parenchymal bands |  | 32% (27) complete: n = 84 | 23% (16) complete: n = 70 | 5.5% (5) complete: n = 91 | p < .001 |
| Microcystic changes |  |  |  | 2.2% (2) complete: n = 91 |  |
| Parenchymal destruction |  |  |  | 9.9% (9) complete: n = 91 |  |
| 1percentage of the complete cases at the time point (n individuals), FUP: follow-up | | | | | |
| 2χ² test for differences between the follow-ups, ns: not significant | | | | | |
| 3ground glass opacity | | | | | |
| 4acute respiratory distress syndrome | | | | | |
| 5organizing pneumonia | | | | | |

# Figures

![Figure 1: Study inclusion flow diagram (placeholder).](data:application/pdf;base64,)

Figure 1: Study inclusion flow diagram (placeholder).

**Figure 1. Study inclusion flow diagram (placeholder).**

![Figure 2: Representative CT images (placeholder).](data:application/pdf;base64,)

Figure 2: Representative CT images (placeholder).

**Figure 2. Representative CT images (placeholder).**

![Figure 3: Resolution kinetic of any lung CT abnormalities.](data:application/pdf;base64,)

Figure 3: Resolution kinetic of any lung CT abnormalities.

**Figure 3. Resolution kinetic of lung CT abnormalities.**

Risk of any lung CT abnormalities at the consecutive time points was modeled by mixed-effect logistic regression (random effect: individual, fixed effect: time post COVID-19) in the entire cohort and the acute COVID-19 severity subsets. Significance of the fixed time term was determined by likelihood ratio test (LRT) versus the respective random effect-only null model.

**(A)** Percents of individuals with CT abnormalities in the analyzed collectives. statistic, degrees of freedom and p values of the LRT test are presented in the plot captions. Numbers of individuals with the complete set of consecutive CT scans are shown under the plots.

**(B)** Recovery between the consecutive follow-ups assessed by Kendall statistic.

![Figure 4: Kinetic of the CT severity score.](data:application/pdf;base64,)

Figure 4: Kinetic of the CT severity score.

**Figure 4. Kinetic of the CT severity score.**

CTSS kinetic at the consecutive time points was investigated by Friedman test (grouping by the individual) in the entire cohort and the acute COVID-19 severity subsets. The effect size was determined by Kendall W test, differences between particular time points were compared by Wilcoxon test.

**(A)** Plots display individual CTSS value trajectories as thin gray lines, thick colored lines represent medians, interquartile ranges are presented as colored regions. statistic, degrees of freedom and p values of the Friedman test and the Kendall W statistic with 95 confidence intervals are presented in the plot captions. Numbers of individuals with the complete set of consecutive CT scans are shown under the plots.

**(B)** Recovery between the consecutive follow-ups assessed by Kendall statistic.

![Figure 5: Risk of developing persistent CT abnormalities at the one-year post-COVID-19 follow-up.](data:application/pdf;base64,)

Figure 5: Risk of developing persistent CT abnormalities at the one-year post-COVID-19 follow-up.

**Figure 5. Risk of developing persistent CT abnormalities at the one-year post-COVID-19 follow-up.**

**(A)** Risk factors of developing any lung CT abnormality at the one-year follow-up visit were identified by a series of logistic models. Odds ratio (OR) significance was determined by Wald Z test. OR with 95 confidence intervals are presented in a Forest plot. Numbers of complete observations and the reference levels of the explanatory variables are indicated in the Y axis.

**(B)** Independent risk factors of lung CT abnormality were identified by multi-parameter logistic modeling with backward elimination. OR significance was determined by Wald Z test. Model prediction was verified by 20-fold cross-validation (CV) and receiver-operating characteristic (ROC). OR with 95 confidence intervals are presented in a Forest plot. Area under the curve (AUC), sensitivity (Se) and specificity (Sp) for detection of lung CT abnormality in CV are indicated in the plot caption. Numbers of complete observations and the reference levels of the explanatory variables are indicated in the Y axis.

Orange: positive correlation, blue: negative correlation, gray: not significant, BMI: body mass index, PKY: packages per year, ref.: reference.

![Figure 6: Predictors of CTSS at the one-year post-COVID-19 follow-up.](data:application/pdf;base64,)

Figure 6: Predictors of CTSS at the one-year post-COVID-19 follow-up.

**Figure 6. Predictors of CTSS at the one-year post-COVID-19 follow-up.**

**(A)** Factors associated with CTSS at the one-year follow-up visit were identified by a series of Poisson models. Regression coefficient () significance was determined by Wald Z test. Exponent with 95 confidence intervals are presented in a Forest plot. Numbers of complete observations and the reference levels of the explanatory variables are indicated in the Y axis.

**(B)** Independent factors associated with CTSS were identified by multi-parameter Poisson modeling with backward elimination. significance was determined by Wald Z test. Model prediction was verified by 20-fold cross-validation (CV). Exponent with 95 confidence intervals are presented in a Forest plot. Mean absolute error (MAE) for prediction of CTSS and model R2 (Rsq) in CV are indicated in the plot caption. Numbers of complete observations and the reference levels of the explanatory variables are indicated in the Y axis.

Orange: positive correlation, blue: negative correlation, gray: not significant, BMI: body mass index, PKY: packages per year, ref.: reference.