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Reviewer A

GENERAL REMARKS

C1. Authors opted for the active voice and the use of the first person (we, our, …). I recommend to avoid the use of the first person and to balance between the passive (much recommended) and the active voices.

R1. Thank you for your comment. We have modified sentences in the Abstract, Methods, Discussion, Study limitation, and Conclusions sections as follows:

(Abstract section, line 6, page 2 → Revised, lines 5, page 2)

We evaluated four different estimation methods …

➔ The ppo values were compared using four different estimation methods…

(Abstract section, line 10, page 2 → Revised, lines 9, page 2)

We compared the ppoFEV_1 and ppo%DLCO with the 3- and 12-month postoperatively (poFEV_1 and po%DLCO).

➔ The ppoFEV_1 and ppo%DLCO were compared with poFEV_1 and po%DLCO obtained at 3 and 12 months after lobectomy.

(Abstract section, line 23, page 2 → Revised, lines 23, page 2)

… when we focused on the resected lobe.

➔ … when patients are classified according to the resected lobe.

(Abstract section, line 23, page 2 → Revised, lines 23-25, page 2-3)

We recommend performing CT_{LAV} first, and Q in some cases to calculate $ppoFEV_1$ and ppo%DLCO in patients who underwent lung lobectomy.

➔ The CT_{LAV} method may be the method of choice instead of S for calculating $ppoFEV_1$ and ppo%DLCO in patients who undergo lung lobectomy despite the presence or absence of airflow limitation.

(Methods section, line 95-98, page 6 → Revised, lines 115-118, page 7)

Helical CT scans were obtained using 64-detector row CT scanners (Optima 660; GE Healthcare, Tokyo, Japan). With the patient in the supine position, we obtained 1.25-mm high-resolution CT images of the lung during a deep inspiratory breath hold. We used 512 × 512 matrices, 1.25-mm collimation, and a scan time of 0.5 s at 120 kVp and 270 mA.

➔ With the patient in the supine position, helical CT scans with 1.25-mm high-resolution CT images of lung during a deep inspiratory breath hold using 64-detector row CT scanners (Optima 660; GE Healthcare, Tokyo, Japan) with 512 × 512 matrices, 1.25-mm collimation, and a scan time of 0.5 s at 120 kVp and 270 mA were obtained.

(Methods section, line 111, page 6 → Revised, lines 131-132, page 8)

We calculated the entire volume and the low-attenuation volume (LAV) for each lobe and both lungs entirely.

➔ The volume and the low-attenuation volume (LAV) for each lobe and lung were calculated.

(Discussion section, line 288, page 13 → Revised, lines 308-310, page 15)

In our present study, we compared the ppo and po values of FEV_1 and $\%DL_{CO}$ for non-COPD and COPD patients, respectively.

➔ The present study suggests that S seems to be a better technique to calculate ppoFEV1 and ppo%DLCO than the other three techniques for single lobectomy when patients were classified into non-COPD and COPD.

(Discussion section, line 312, page 14 → Moved, lines 270-271, page 14)

Therefore, we thought that it may be better to exclude the estimation method …

➔ Therefore, excluding the estimation method that provided overestimated ppo values compared to the po values is presumed to be better, …

(Conclusions section, line 349, page 16 → Revised, lines 365-366, page 18)

…, when we classified patients into the non-COPD and COPD groups.

➔ …, when patients are classified into non-COPD and COPD groups.

(Conclusions section, line 351, page 16 → Revised, lines 367, page 18)

…when we focused on the resected lobe.

➔ …when patients are classified on the basis of the resected lobe.

(Conclusions section, line 351, page 16 → Revised, lines 367-369, page 18)

We may use individual estimating method for evaluating ppo values associated with the location of the lobe that will be resected.

➔ Using an individual estimating method may be necessary for evaluating ppo values associated with the location of the lobe that will be resected.

(Conclusions section, line 352, page 16 → Revised, lines 369-371, page 18)

We proposed CT_{LAV} initially, and Q in some cases (i.e. in patients with maldistribution of the lung's blood flow) to calculate ppoFEV_1 and ppo%DL_{CO} for patients who underwent lobectomy.

➔ The CT_{LAV} method may be the method of choice instead of S for calculating ppoFEV_1 and ppo%DLCO in patients who undergo lobectomy despite the presence or absence of airflow limitation.

C2. Replace "gender" by "sex"

R2. Thank you. We have revised accordingly.

(Methods section, line 91, page 6 → Revised, lines 112, page 7)

… age, gender, and height. → …age, sex, and height.

C3. Table 2A and Table 2B should be changed as Tables 2 and 3

C4. Table 4A and Table 4B should be changed as Tables 5 and 6

R3, R4. Thank you. We changed Table 2A, Table 2B, Table 3, Table 4A, and Table 4B to Table 2, Table 3, Table 4, Table 5, and Table 6, respectively.

C5. The international way to express lung volume is L not ml. So, please change FEV1, FVC and VC data from ml to L.

R5. Thank you for your important comment. We have made this revision.

According to the unit change, mean difference between poFEV_1 and ppoFEV_1 for RUL (3 and 12 month) and for LLL (12 month) calculated by CT_{LAV} and CT became the same. Accordingly, we modified the result sections as indicated below:

(Abstract section, line 17, page 2 → Revised, lines 17, page 2)

…, CT_{LAV} for right lower… → …, CT and CT_{LAV} for right lower…

(Abstract section, line 18, page 2 → Revised, lines 18, page 2)

…, and (4) CT_{LAV} for left lower… → …, and (4) CT and CT_{LAV} for left lower …

(Result section, line 234, page 11 → Revised, lines 248, page 13)

For RLL, CT_{LAV} showed… → For RLL, CT and CT_{LAV} showed…

(Result section, line 245, page 12 → Revised, lines 255, page 13)

In contrast, CT_{LAV} showed… → In contrast, CT and CT_{LAV} showed…

(Comparison between the resected lobes section, line 305, page 12 → Revised, lines 323-324, page 16)

… (312 ± 99.2mL) → … (0.31 ± 0.1 L)

(Comparison between the resected lobes section, line 299, page 14 → Revised, lines 317, page 16)

…, CT_{LAV} for RLL… → …, CT and CT_{LAV} for RLL…

(Comparison between the resected lobes section, line 301, page 14 → Revised, lines 319-320, page 16)

…, CT_{LAV} showed the… → …, CT and CT_{LAV} showed the …

C6. Authors are asked to manage their abbreviations.

R6. Thank you. We have managed abbreviations as you suggested.

B. TITLE

C7. The correct expression of lung diffusion (or transfer) capacity is DLCO (not DLco). Please see the latest guidelines concerning DLCO measurements: Graham BL, et al. 2017 ERS/ATS standards for single-breath carbon monoxide uptake in the lung. Eur Respir J. 2017;49(1).

R7. Thank you for your important comment. We have revised the text accordingly. We also changed the title according to the comment of Reviewer #B.

→ Comparison of quantitative computed tomography, scintigraphy, and anatomical methods for prediction of postoperative FEV_1 and DLCO. Effects of COPD status and resected lobe.

C. ABSTRACT

C8. P2L9: the reviewer notes "This prospective study conducted over 1 year" but in text (P5L65), he noted "Between December 11, 2013 and March 28, 2016". A precision is needed.

R8. Thank you for your comment. Enrolled patients were those who were scheduled to undergo single lobectomy by video-assisted thoracoscopic surgery (VATS) at Kitasato University Hospital between December 11, 2013 and March 28, 2016. We followed up those patients, and in total, 59 patients successfully performed the pulmonary function test at 3 and 12 months after lobectomy and were eligible for inclusion.

We modified the text as indicated below:

(Abstract section, line 9, page 2 → Revised, lines 8-9, page 2)
This prospective study conducted over 1 year included 59 eligible patients requiring single lobectomy.

➔ This prospective study included 59 eligible patients requiring single lobectomy and succeeded in performing pulmonary function test at 3 and 12 months after lobectomy.

(Methods section, line 65, page 5 → Revised, lines 67-71, page 6)

Between December 11, 2013 and March 28, 2016, …

➔ Eligible patients were those scheduled to undergo single lobectomy by video-assisted thoracoscopic surgery (VATS) at Kitasato University Hospital in Kanagawa, Japan, between December 11, 2013 and March 28, 2016, and those who succeeded in performing pulmonary function test at 3 and 12 months after lobectomy. All patients were prospectively enrolled in this study after obtaining their written informed consent.

C9. Please avoid the active voice and the use of the first person (We for example was used 4 times)

R9. Thank you for your comment. We have modified sentences in the Abstract. Please refer to R1.

C10. Key words: please use key words not cited neither in the title nor in the abstract

R10. Thank you. We have changed the keywords.

(Keywords, line 27, page 3 → Revised, lines 28-29, page 4)

lobectomy, predict postoperative pulmonary function, low attenuation volume

➔ Thoracic surgical candidate, video-assisted thoracoscopic surgery, location of the lobe

D. INTRODUCTION
Ok well done.

D. Thank you.

E. METHODS

C11. P5L75-89 and P6L90-91: the subsection needs several changes

*C11-1 *Which guidelines were applied to perform spirometry? ATS/ERS or Japanese guidelines?*

*C11-2 **Which guidelines were applied to measure DLCO?*

(Methods section, line 76, page 5 → Revised, lines 86-89, page 6)

R11-1, 2. Thank you. The Japanese guideline published in 2004 was applied to perform spirometry and measure DLCO. We have modified the text and added the Japanese guideline to the reference.

Pulmonary function tests were performed according to the guidelines of the Japanese Respiratory Society and spirometric reference values of vital capacity (VC), forced vital capacity (FVC), FEV_1, and FEV_1/FVC for Japanese adults were calculated using the LMS (lambda, mu, sigma) method (14).

➔ Pulmonary function tests including slow vital capacity (SVC), forced vital capacity (FVC), FEV_1, and DLCO were performed according to the guidelines of the Japanese Respiratory Society (13), and spirometric reference values of SVC, FVC, FEV_1, and FEV_1/FVC for Japanese adults were calculated using the LMS (lambda, mu, sigma) method (14).

*C11-3 ***Which norms were applied to determine DLCO predictive values?*

R11-3 The normal values for estimating predict DLCO were based on manuscript published by Burrow et, al. We have added the lines as indicated below: (at line 90-91, page 6)

➔ To determine %DLCO, normal values of DLCO reported by Burrow *et al.* (15) were applied.

*C11-4. ****Does DLCO was corrected according to the Hemoglobin level?*

R11-4. Yes, it does. We have added the following line at line 89-90, page 6.

➔ DLCO was corrected according to the patient's haemoglobin level.

C12 P6L91: describe the term "severity" and be aware that it is not "COPD severity" by "bronchial obstruction severity in COPD" which is expressed in terms of 4 stages GOLD 1 to 4. COPD severity is the ABCD classification based on other criteria (dyspnea, CAT, exacerbation). More important, it is capital to add adequate references for all the sentences.

R12. Thank you for important comment. I modified the text and added reference.

(Methods section, line 91, page 6 → Revised, lines 99-101, page 7)

COPD and its severity were… (GOLD) criteria.

➔ Classification of airflow limitation severity in COPD was defined with post-bronchodilator predicted FEV_1 according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria (16).

C13. P7L127-128: authors are asked to add an adequate reference to argue the following sentence "This is the standard calculation formula for thoracic surgery in our hospital."

R13. Thank you. We have added the reference. However, we apologise for the incorrect explanation of the scintigraphy method. We have corrected the explanation, too.

(Methods section, line 123-128, page 7 → Revised, lines 146-148, page 9)

The method based on perfusion scintigraphy (Q) was as follows: (ii) ppo value = …. This is the standard calculation formula for thoracic surgery in our hospital.

➔ The method based on perfusion scintigraphy (Q) was as follows: (ii) ppo value = preoperative value × (1 – functional contribution of perfusion of the region to be removed). This is the standard calculation formula for thoracic surgery in our hospital (17).

C14. P7L129-134: authors are asked to add an adequate reference to argue their long

sentence "The method based .....lung volume".

R14. Thank you. We have added the reference in lines 149-154, page 9 on revised version.

C15. P8L142: the authors opted for the correlation coefficient (r); however, in tables they reported the determination coefficient (r2). Please be precise and clear.

R15. Thank you for your important comment. We opted determination coefficient (r2). We corrected the text as below.

(Methods section, line 142, page 8 → Revised, lines 165-166, page 9)

… using the Spearman's correction coefficient between…

➔ … using the determination coefficient.

C16. P8L143: delete (Table 3AB) (there is no table 3AB) and delete (Table 4AB) from the text.

C17. P8L145: delete (Table 3AB and 4AB) from the text.

R16, R17. Thank you. We deleted Table 3AB and 4AB from the statistical analysis section. We renamed them as Table 2, Table 3, Table 5, and Table 6 and have cited them in the result section.

(Methods section, line 142-143, page 8 → Revised, lines 166, page 9)

…coefficient between COPD and non-COPD patients (Table 3AB) and the resected lobe (Table 4AB).

➔ …coefficient.

(Methods section, line 145, page 8 → Revised, line 167, page 10)

… each method (Table 3AB and 4AB).

➔ … each method.

C18. The reviewer noted that the following data were noted in some tables without any previous description in the methods section:
*C18-1. *BSA for body surface area: which formula was applied to calculate BSA and why?*

R18. Thank you. It is not necessary to show BSA in this manuscript. We deleted BSA from the previous version of the text and Table 1.

(Results section, line 167, page 9 → Revised, line 189, page 10)

Body weight and BSA were…

➔ Body weight was…

*C18-2. **Smoking status: what is for example a current or former smoker?*

R18-2. Thank you. We have added the smoking status definition in the methods section. (line 78-83, page 6)

➔ For smoking status, a patient who had smoked more than 100 cigarettes in their lifetime and had smoked in the last 28 days before preoperative pulmonary function testing, was defined as a "current smoker." A patient who had smoked more than 100 cigarettes in their lifetime but had not smoked in the last 28 days before preoperative pulmonary function testing was defined as a "former smoker," and a patient who had smoked less than 100 cigarettes in their lifetime and did not currently smoke was defined as a "non-smoker."

F. RESULTS
C19. P9L164-166: the correct place of the sentence 'after minor changes" is the Methods section. Moreover, authors are asked to add an adequate reference to argue that "smoking 24 hours prior to DLco measurements affects the results"

R19. Thank you. Cigarette smoking is the most common source of COHb; subjects must be asked to refrain from smoking on the day of the test (Graham, BL, et al. Eur Respir J

49. 2017). Smoking increase COHb and decrease DLCO. 24 h after smoking cessation make DLCO increase (Sansores, et al. Am Rev Respir Dis. 959-64, 1992).

We modified the text and added references.

(Methods section, line 163-166, page 8-9 → Revised, lines 186-188, pages 10)

All patients discontinued smoking 24 hours prior to DLCOco measurements of the first set of pulmonary function tests to prevent smoking from affecting the results of the test.

➔ According to the guidelines for the lung function testing (13), all patients discontinued smoking 24 hours prior to DLCO measurements of the first set of pulmonary function tests to prevent smoking from affecting the results of the test (21, 22).

C20. P9L167: the following sentence "Preoperative patient……Table 1" was previously written P8L159: please avoid redundancy.

R20. Thank you. We have deleted this sentence from revised manuscript (between line 188 and 189, page 10).

C21. P9L170: %LAV should be defined in the Methods section not in the Results section. Please correct and add adequate reference to the definition/way of calculation.

R21. Thank you. The formula for %LAV has been moved from the Result section to the Methods section and added reference to the definition/way of calculation.

(Result section, line 170, page 9 → Moved, lines 132-134, page 8)

Both mean %LAV values of the resected lobe ([LAV of the resected lobe/volume of the resected lobe] × 100) and the entire lungs ([LAV of the entire lungs/volume of the entire lungs] × 100) were …

➔ %LAV of the resected lobe was calculated by dividing [LAV of the resected lobe] by [volume of the resected lobe] and %LAV of lung was calculated by dividing [LAV of the lung] by [volume of the lung] (12).

(Result section, line 170, page 9 → Revised, line 192, page 11)

Both mean %LAV values of the resected lobe ([LAV of the resected lobe/volume of the resected lobe] × 100) and the entire lungs ([LAV of the entire lungs/volume of the entire lungs] × 100) were …

➔ Both mean %LAV values of the resected lobe and lung were…

C22. P9L176: VATS was previously defined L66; therefore, write only: VATS for lobectomy and postoperative pain

R22. Thank you. We have modified this sentence as you recommended.

(Result section, line 176, page 9 → Revised, line 196, page 11)

Video-assisted thoracoscopic surgery (VATS) for lobectomy and postoperative pain

➔ ***VATS for lobectomy and postoperative pain***

C23. L179: delete "in our division)

R23. Thank you. We deleted "in our division" as you recommended.

(*VATS for lobectomy and postoperative pain* section, line 179, page 9 → Revised, line 199, page 11)

… thoracic surgeons in our division.

➔ … thoracic surgeons.

C24. L183: what is "NSAIDs"?

R24. Thank you. We replaced "NSAIDs" with "non-steroidal anti-inflammatory drugs."

(Result section, line 183, page 9 → Revised, lines 203, page 11)

…, NSAIDs and/or…

➔ …, non-steroidal anti-inflammatory drugs and/or …

C25. L190: GOLD stages were not defined in the methods section. Moreover, GOLD stages are based on the post bronchodilator FEV1. In this study, readers were not informed if the bronchodilator test was performed? Please be clear…

R25. Thank you. Some patients who were diagnosed with COPD previously and were started on COPD treatment did not wish to undergo a bronchodilator test to assess airflow limitation severity. We also did not perform the bronchodilator test with a short-acting inhaled bronchodilator for the patients who had airflow limitation ($FEV_1/FVC < 0.70$) but had not been diagnosed with obstructive ventilatory defect.

According to the GOLD report, short-acting bronchodilator inhalation is required 'in order to minimize variability' (p27. GOLD 2018 report). In our study, the patient's airflow limitation was assessed approximately 2 weeks after receiving treatment with a bronchodilator for those who had airflow limitation ($FEV_1/FVC < 0.70$) but had not been diagnosed with obstructive ventilatory defect. We believe that bronchodilator affect to make the variability of result of pulmonary function test minimize with their 2wks medication. Then, we did not perform a bronchodilator test with short-acting inhaled bronchodilator for them.

We added following sentence in the Methods section. (lines 99-111-, page 7)

➔ Classification of airflow limitation severity in COPD was defined with post-bronchodilator predicted FEV_1 according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria (16). Among patients with airflow limitation ($FEV_1/FVC < 0.70$), some patients who were previously diagnosed as COPD and had been started on treatment for their COPD, refused to undergo the bronchodilator test to assess their airflow limitation severity. Other patients that were not diagnosed as having obstructive ventilatory defect were started on treatment with a bronchodilator (inhaled long-acting muscarinic antagonist [LAMA] and/or long-acting beta-agonist [LABA]) without a bronchodilator test. The preoperative pulmonary function test was repeated approximately 2 weeks after receiving treatment with a bronchodilator, which was maintained throughout the study. The patients who remained with airflow limitation ($FEV_1/FVC < 0.70$) under the bronchodilator treatment were regarded as having COPD,

and their airflow limitation severity was assessed on the basis of results of the second preoperative pulmonary function test.

C26. L192: delete "high flow oxygen therapy, or"

R26. Thank you. We deleted "high flow oxygen therapy, or" (line 212, page 11).

(Result section, line 192, page 10 → Revised, lines 212, page 11)

… but did not require high-flow oxygen therapy, or invasive or non-invasive mechanical ventilation.

→ … but did not require mechanical ventilation.

C27. L205-207: redundancy between text and tables, and confusion between (r) and (r2). It is better to write: The ppoFEV1 calculated by S, Q, CT and CTLAV were shown in Table 2. In the non-COPD group, S showed the smallest mean difference of FEV1 with R2=0.73 (p<0.01) at 3 months after lobectomy and with R2=0.69 (p<0.01) at 12 months after lobectomy." The same change should be applied to all the sentences (L208-2015).

R27. Thank you for your important comment. We modified the text according to your suggestion.

(Result section, line 204-213, page 10-11 → Revised, lines 223-226, page 12)

➔ The ppoFEV1 calculated by S, Q, CT, and CTLAV, the mean differences between po and ppo (bias) and LOA and determination coefficient are shown in Table 2. In the non-COPD group, S showed the smallest mean difference of FEV_1 at 3 and 12 months after lobectomy.

C28. L218-219: change "the mean volume and the ratio of LAV of resected lobe/ entire lung (%LAV)" by "the mean volume and the %LAV". %LAV was previously defined???

R23. We are sorry that the explanation was not correct in the previous version of text. The middle column in previous version of Table 3 showed the volume percentage ratio of LAV of resected lobe to LAV of the lung (%, not %LAV).

We modified the text as bellow.

(Result section, line 218-219, page 11 → Revised, lines 234-237, page 12)

…, the mean volume and the ratio of LAV of resected lobe/ entire lung (%LAV) estimated by CT …

➔ …, the mean volume of resected lobe, volume percentage ratio of LAV of resected lobe to LAV of the lung (%) and the volume of each pulmonary segment, which was calculated by dividing [volume of each lobe] by [number of segmental bronchi], are also shown in Table 4.

We moved the definition of %LAV from Result section to Methods section and modified the text, too (Result section, line 170, page 9 → Moved, lines 132-134, page 8).

C29. L222: replace "left upper lobe" by (LUL) previously abbreviated L195.

R23. Thank you. We have replaced it.

(Result section, line 195, page 10 → Revised, lines 214, page 11)

… had left upper lobectomies (LUL) required …

➔ … had LUL required …

C30. L227-249: similar remark: avoid "redundancy between text and tables, and confusion between (r) and (r2)."

R30. Thank you for your important comment. We modified the text according to your comment.

(Result section, Line 227-249, page 11-12 → Revised, line 243-258, page 13)

For RUL, Q showed the smallest mean positive difference of FEV1 at 3 and 12 months after lobectomy. Q also showed the smallest mean positive difference of %DLCO at 3 months, and S showed the smallest mean difference %DLCO at 12 months after lobectomy. At both 3 and 12 months after lobectomy, poFEV1 was less than ppoFEV1 calculated by S. At 3 months after lobectomy, po%DLCO was also less than ppo%DLCO calculated by S.

For RLL, CT and CTLAV showed the smallest mean difference of FEV1 at 3 and at 12 months after lobectomy. CTLAV also showed the smallest mean difference of %DLCO at 3 and 12 months after lobectomy.

For LUL, S showed the smallest mean difference of FEV1 at 3 and 12 months after lobectomy. S also showed the smallest mean difference of %DLCO at 3 and 12 months after lobectomy.

For LLL, the actual FEV1 at 3 months after lobectomy was less than the ppoFEV1 calculated by all 4 methods. In contrast, CT and CTLAV showed the smallest mean difference of FEV1 at 12 months after lobectomy. Similarly, the po%DLCO was less than the ppo%DLCO calculated by all 4 different techniques at 3 months after lobectomy. The CTLAV showed the smallest mean difference of %DLCO at 12 months after lobectomy.

C31. L253: there is no Table 3A, 3B???

R31. We apologise for incorrect table numbers in the previous version. We have made the necessary corrections.

(Result section, line 253, page 12 → Revised, lines 262, page 13)

(Table 2A, 2B, 3A and 3B).

➔ (Tables 2, 3, 5, and 6).

G. DISCUSSION

C32. L262 and L277: add a reference for the Nakahara formula.

R32. Thank you. We added the reference in lines 262 and 277.

(Result section, line 262, page 12 → Revised, lines 281, page 14)

(Result section, line 277, page 13 → Revised, lines 297, page 15)

Nakahara formula

➔ Nakahara formula (25)

C33. L343: add a reference for GOLD classification (which one 2016, 2019, 2020?)

R33. Thank you. We have added the reference.

(Study limitation section, line 343, page 16 → Revised, lines 356-357, page 17).

… using the GOLD classification.

➔ … using the GOLD classification (16).

C34. L344: what is a high-risk patient?

R34. Thank you. We wanted to say, "high-risk patient" means "high-risk patient for perioperative mortality." We modified the text line 344 and 346, page 16 in the previous version of the text.

(Study limitation section, line 344, page 16 → Revised, lines 359, page 17)

…high-risk patient…

➔ high-risk patients for perioperative mortality (1, 2) …

(Study limitation section, line 346, page 16 → Revised, lines 362, page 17).

… in severely affected patients.

➔ … with preoperatively lower pulmonary function.

C35. TABLE 1. Replace VC by SVC (slow vital capacity), express all volumes in L (not ml), express FVC in % (as the SVC and FEV1)

R35. Thank you. We have replaced VC by SVC, expressed all volumes in L, and expressed FVC in % in Table 1.

C36. TABLE 2. determination coefficient not correlation coefficient, FEV1 data in L (not ml),

R36. Thank you. We have replaced correlation coefficient with determination coefficient and expressed FEV_1 data in L in the revised Table 2 and Table 3 (Table 2A and 2B in the previous version).

C37. TABLE 3. Volume data in L (not ml)

R36. Thank you. We have expressed volume data in L in New Table 4 (Table 3 in the previous version).

C38. TABLE 4. determination coefficient not correlation coefficient, FEV1 data in L (not ml)

R38. Thank you. We have replaced correlation coefficient with determination coefficient and expressed FEV_1 data in L in revised Table 5 and Table 6 (Table 4A and 4B in the previous version).

Reviewer B

Main Concerns

C1- Authors should improve clarity of the MS.

-Introduction and discussion are difficult to read and follow. For instance, I find myself unable at the End of the introduction to "say" what is the main goal of the study. After carefully reading of the MS, I know now that the authors have compared 4 techniques for the prediction of ppoFEV1 and DLco. And Then they studied effects on these predicted values of COPD status and resected lobes.

The title should be: Comparison of quantitative computed tomography, scintigraphy, and anatomical methods for Prediction of postoperative FEV1 and DLco. Effect-s of COPD status and resected lobes. Or something like that.

R1. Thank you for your comment. We improved our manuscript with reviewer's comments. We also changed the title according to your comment.

(Title)

Prediction of postoperative FEV1 and DLco according to the resected lobe: Comparison between quantitative computed tomography, scintigraphy, and anatomical methods.

→ Comparison of quantitative computed tomography, scintigraphy, and anatomical methods for Prediction of postoperative FEV_1 and DLCO. Effects of COPD status and resected lobes.

C2. -in the paragraph Prediction of the postoperative pulmonary function P7 line 115, authors should add just a sentence to precise that ppo values are all calculated from pre-operative values modified by estimation of lost function by these 4 techniques.

R2. Thank you for your comment. We have added the sentence according to your recommendation.

(Methods section, line 115, page 7 → Revised, lines 137-138, page 8).

…, the ppo values were estimated by 4 different modalities: …

➔ …, the ppo values were all calculated from pre-operative values modified by estimation of lost function by these 4 techniques: …

2-Expressions of the results.

C3.-Authors should use a Bland-Altman plots approach (to compare these methods measuring the same thing) instead of the tables 2A en 2 B. for example Table 2A S 24.4± 232.3 and CT LAV 32 ± 219 (at M3) when Spearman's coefficient are respectively 0.73 and 0.79 ? Which is the better technique S or CTlav? Bias and agreement limits?

-Table 4 and effects of "resected lobe". I don't know what to think about it. Correlations with small "population 9- to 19).

- May be effects of COPD and "anatomy lobe" and errors and be studied on the global population using regression?

R3. Thank you for your comment. We have added the limits of agreement analysed using the Bland-Altman method in the new Tables 2, 3, 5, and 6 to redeem the small number of subjects. We modified the statistical analysis and result sections.

To avoid the comparison between the four techniques with determination coefficients, we deleted R^2 values from the result section. However, we kept the "R^2 data" in the tables because a previous published manuscript (Bolligr CT, et al. Respiration. 69, 482-489, 2002.) analysed the relationship between po and ppo values of FEV_1 and DLCO with correlation coefficients with small sample size (n=10), and we respect the acceptance of the correlation methods by reviewer A. We also revised the "Study limitations" section. We hope you will accept our rework.

(Statistical analysis section, line 141-143, page 8 → Revised, lines 161-166, pages 9)

The mean values for FEV_1 and $\%DL_{CO}$ were compared between the ppo values and po values obtained at 3 and 12 months after lobectomy using the Spearman's correlation coefficient between COPD and non-COPD patients (Table 3AB) and the resected lobe (Table 4AB).

→ Agreement between the ppo values and po values of FEV_1 and %DLCO obtained at 3 and 12 months after lobectomy were analysed using the Bland-Altman method (19) by plotting the difference between the paired po and ppo values according to COPD, non-COPD and the resected lobe. Limits of agreement (LOA) were defined as mean of difference ± 2 SD. The mean values for FEV_1 and %DLCO were also compared between the ppo and po values using the determination coefficient.

(Results section, line 204, page 10 → Revised, lines 223-224, page 12)

The ppoFEV_1 calculated by S, Q, CT and CT_{LAV} were shown in Table 2A.

➔ The ppoFEV1 calculated by S, Q, CT, and CT_{LAV}, mean difference between po and ppo (bias) and LOA and determination coefficient are shown in Table 2.

(Results section, line 211, page 10 → Revised, lines 227-228, page 12)

The ppo$\%DL_{co}$ calculated by S, Q, CT and CT_{LAV} were shown in Table 2B.

➔ The ppo%DLCO calculated by S, Q, CT, and CT_{LAV}, mean difference between po and ppo and LOA and determination coefficient are shown in Table 3.

(Results section, line 224, page 11 → Revised, lines 240-241 page 13)

The ppoFEV_1 and ppo$\%DL_{co}$ calculated by S, Q, CT and CT_{LAV} are shown in Table 4A and 4B.

➔ The ppoFEV1 and ppo%DLCO calculated by S, Q, CT, and CT_{LAV}, mean difference between po and ppo and LOA and determination coefficient are shown in Tables 5 and 6.

(Results section, line 291-292, page 14 → Deleted, line 311, page 15)

The coefficient of … → deleted

(Study limitation section, line 343, page 16 → Added, lines 357-359, page 17)

➔ … using the GOLD classification (16). The current study described the effect of COPD and anatomical location on the ppo values, and a further study with a larger sample size may clarify this effect for the ppo calculation.

C4. -Why the table 3?

R4. Thank you for your important comment. We apologise for incorrect table numbers in the previous version. We have revised them.

3-discussion of the results

C5. May be because of the expression of the results, discussion is difficult to read and conclusion are difficult to drawn. To be provocative: S seems Ok, but CTlav and in some cases Q?

R5. Thank you for your comment. We have revised the discussion (and result) section to improve clarity and reader comprehension.

(Discussion section, line 307-315, page 14-15 → Moved, line 265-273, page 14)

(Discussion section, line 260-261, page 12 → Moved, line 274-275, page 14)

(Discussion section, line 261, page 12 → Added, line 275-278, page 14)

➔ However, these previous studies did not focus on whether patients were diagnosed with COPD, or the location of the resected lobe, although the po lung volume and its function may vary depending on LAV (9, 10), and the area of the resected lobe (11, 12).

(Discussion section, line 287, page 13 → Revised, line 307, page 15)

Many of these previous… → However, many of these…

(Discussion section, line 288-292, page 13-14 → Revised, line 308-310, page 15)

In our present study, we …

➔ The present study suggests that S seems to be a better technique to calculate ppoFEV_1 and ppo%DLCO than the other three techniques for single lobectomy when patients were classified into non-COPD and COPD.

(Discussion section, line338, page 15 → Added, line 348-351, page 17)

… excessively in lower lobe lobectomy (12).

➔ … excessively in lower lobe lobectomy (12). The present study suggests that CT_{LAV} is a better technique to calculate ppoFEV_1 and ppo%DLCO when patients were classified on the basis of the resected lobe. In addition, in case of patients with maldistribution of the lung's blood flow, Q seems better than CT_{LAV} because CT images show lung volume well, but they do not indicate pulmonary function as Q does.