

letter

Comment on “The effect of preoperative chest physiotherapy on oxygenation and lung function in cardiac surgery patients: a randomized controlled study”

We read the article titled “The effect of preoperative chest physiotherapy on oxygenation and lung function in cardiac surgery patients: a randomized controlled study” published in your journal.¹ I would like to commend the authors for evaluating the effect of preoperative chest physiotherapy in 100 patients undergoing cardiac surgery.

The article is plausible and complete in every aspect, however, there are a few other statistical tests and crucial reporting items missing. First, about the statistical test, it would be better to compare the mean difference between the two groups or use ANCOVA with baseline measurements as covariant.^{2,3} By doing so, authors will be able to provide robust evidence to use preoperative physical therapy modalities in patients undergoing cardiac surgery.⁴ Second, authors need to report the effect size for readers to evaluate the magnitude of the experimental effect.

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Reply

We would like to thank the readers for their valuable and constructive comments regarding our published study entitled “The effect of preoperative chest physiotherapy on oxygenation and lung function in cardiac surgery patients: a randomized controlled study”.

We take your feedback open-heartedly but we had not previously performed the ANCOVA test because we found that all the patients in our article were matching in the baseline and their results were comparable, so we compared them without comparing each patient individually. However, we appreciate learning from your wisdom and experience. So we ran the ANCOVA test as required and

report the results as follows :

Analysis of the intervention effect on FVC (%predicted) using ANCOVA test revealed a statistically significant difference between the intervention (group I) and the control group (group II) in the postoperative (day 7) FVC (%predicted) after adjusting the mean difference. A pairwise comparison to estimate the effect size revealed that the intervention group (group I) had a greater postoperative FVC (%predicted) than the control group (group II) of 21.96 (95% CI, 18.96–224.97) (**Table 1**).

Analysis of the intervention effect on FVC using ANCOVA test revealed a statistically significant difference between the intervention and the control group in the postoperative (day 7) FVC after adjusting the mean difference. A pairwise comparison to estimate the effect size revealed that the intervention group (group I) had a greater postoperative FEV1(% predicted) than the control group (group II) 22.12 by (95% CI, 19.2-25.0) (**Table 2**).

We found that the conclusion was unchanged. Based on the primary outcome of the study and calculation of Cohen's d, the effect size was larger than 1 and hence clinically important.

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Table 1. Analysis of the intervention effect on FVC using ANCOVA test.

| Source | Type III sum of squares | df | Mean square | F | Sig. |
|----------------------------|-------------------------|-----------|-------------|---------|-------|
| Corrected model | 18481.981a | 2 | 9240.991 | 166.415 | <.001 |
| Intercept | 6605.974 | 1 | 6605.974 | 118.963 | <.001 |
| Basal FVC (% predicted) | 4364.842 | 1 | 4364.842 | 78.604 | <.001 |
| Group | 11695.231 | 1 | 11695.231 | 210.612 | <.001 |
| Error | 5386.379 | 97 | 55.530 | | |
| Total | 592686.000 | 100 | | | |
| Corrected total | 23868.360 | 99 | | | |

Table 2. Analysis of the intervention effect on FEV1 using ANCOVA test.

| Source | Type III sum of squares | df | Mean square | F | Sig. |
|------------------------|-------------------------|-----------|-------------|---------|-------|
| Corrected model | 20110.029a | 2 | 10055.014 | 197.808 | <.001 |
| Intercept | 5832.981 | 1 | 5832.981 | 114.750 | <.001 |
| Basal FEV1 | 4741.117 | 1 | 4741.117 | 93.270 | <.001 |
| Group | 11631.188 | 1 | 11631.188 | 228.815 | <.001 |
| Error | 4930.721 | 97 | 50.832 | | |
| Total | 634221.000 | 100 | | | |
| Corrected total | 25040.750 | 99 | | | |