Reply to: Asthma-chronic obstructive pulmonary disease overlap syndrome: Is prediction feasible?

Sir,

We read the letter “asthma-COPD overlap syndrome: Is prediction feasible?”[1] with keen interest and thank the authors for raising certain very pertinent issues with regard to our paper.[2]

We agree that the diagnostic criteria for asthma-chronic obstructive pulmonary disease (COPD) overlap syndrome (ACOS), or as it is simply referred to as asthma-COPD overlap (ACO), in our study group were limited to a single criteria: significant bronchodilator reversibility (change in postbronchodilator forced expiratory volume in 1 s [FEV₁] or forced vital capacity [FVC] by 12% and 200 ml) in the background of persistent postbronchodilator airflow limitation (FEV₁/FVC <70%). We have also mentioned that more exhaustive criteria have been used by other studies in the opening paragraph of the discussion in our paper. We agree that this is a limitation in our study, as discussed in the closing paragraph of our discussion. However, we would like to bring to attention to the authors on our concluding statement in our discussion: in spite of a single diagnostic criteria being applied to identify the ACOS group in our study population, we found that features attributed to the ACOS group in our study population have been identified...
to be similar to those identified in patients diagnosed with ACOS with more exhaustive diagnostic criteria in other studies. Whether a single diagnostic criterion alone can suffice to identify this group of patients probably requires further research.

Second, the authors have identified that in Table 1, there is a record of postbronchodilator drop (or minus values) in spirometric indices in some patients in the non-ACOS group in the percentage reversibility (up to −22%) and volume reversibility (up to −270 ml). The ATS/ERS Task Force on standardization of lung function testing published in 2005 has summarized that inter-maneuver variability of up to 150 ml is accepted in FVC and FEV1, and values greater than that may be due to incomplete inhalations before the FVC maneuver. In these patients of our study group, up to a maximum of eight maneuvers were attempted, and hence, we had to take the best three maneuver recordings in spite of not completely meeting the acceptability criteria of inter-maneuver variability.

Third, the authors have brought to notice on the nonreproducibility of results with respect to the findings to be similar to those identified in patients diagnosed with ACOS with more exhaustive diagnostic criteria in other studies. Whether a single diagnostic criterion alone can suffice to identify this group of patients probably requires further research.

Second, the authors have identified that in Table 1, there is a record of postbronchodilator drop (or minus values) in spirometric indices in some patients in the non-ACOS group in the percentage reversibility (up to −22%) and volume reversibility (up to −270 ml). The ATS/ERS Task Force on standardization of lung function testing published in 2005 has summarized that inter-maneuver variability of up to 150 ml is accepted in FVC and FEV1, and values greater than that may be due to incomplete inhalations before the FVC maneuver. In these patients of our study group, up to a maximum of eight maneuvers were attempted, and hence, we had to take the best three maneuver recordings in spite of not completely meeting the acceptability criteria of inter-maneuver variability.

Table 1: Distribution of study population with respect to ankle edema

| Crosstab       | 1  | 2  | Total |
|----------------|----|----|-------|
| Ankle edema    |    |    |       |
| 1              | 17 | 17 | 34    |
| 2              | 36 | 28 | 64    |
| Count          |    |    |       |
| Expected count | 18.4 | 15.6 | 34 |
| Percentage within ankle edema | 50.00 | 50.00 | 100.00 |
| Total          |    |    |       |
| Count          | 53 | 45 | 98    |
| Expected count | 53 | 45 | 98    |
| Percentage within ankle edema | 54.10 | 45.90 | 100.00 |

ACOS: Asthma-chronic obstructive pulmonary disease overlap syndrome, Group 1: Non-ACOS, Group 2: ACOS, Ankle edema 1: Present, Ankle edema 2: Absent

Table 2: Statistical analysis output data with respect to ankle edema

| Value          | df | Asymptotic significance (two-sided) | Exact significance (two-sided) | Exact significance (one-sided) |
|----------------|----|-----------------------------------|--------------------------------|--------------------------------|
| Pearson χ²     | 0.349 | 1 | 0.0455 |                |
| Continuity correction | 0.143 | 1 | 0.705 |                |
| Likelihood ratio | 0.349 | 1 | 0.555 |                |
| Fisher’s exact test |               | 0.671 | 0.352 |                |
| Linear-by-linear association | 0.346 | 1 | 0.557 |                |
| Number of valid cases | 98 | | | |

0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.61, Computed only for a 2×2 table

Table 3: Distribution of study population with respect to ER visits

| Crosstab       | 1   | 2   | Total |
|----------------|-----|-----|-------|
| Number of ER visit last year |    |    |       |
| 1              | 31  | 24  | 55    |
| Count          |    |    |       |
| Expected count | 29.7 | 25.3 | 55 |
| Percentage within number of ER visit last year | 56.40 | 43.60 | 100.00 |
| 2              | 22  | 21  | 43    |
| Count          |    |    |       |
| Expected count | 23.3 | 19.7 | 43 |
| Percentage within number of ER visit last year | 51.20 | 48.80 | 100.00 |
| Total          |    |    |       |
| Count          | 53  | 45  | 98    |
| Expected count | 53  | 45  | 98    |
| Percentage within number of ER visit last year | 54.10 | 45.90 | 100.00 |

ACOS: Asthma-chronic obstructive pulmonary disease overlap syndrome, Group 1: Non-ACOS, Group 2: ACOS, ER: Emergency room

Table 4: Statistical analysis output data with respect to ER visits

| Value          | df | Asymptotic significance (two-sided) | Exact significance (two-sided) | Exact significance (one-sided) |
|----------------|----|-----------------------------------|--------------------------------|--------------------------------|
| Pearson χ²     | 0.263 | 1 | 0.038 |                |
| Continuity correction | 0.095 | 1 | 0.758 |                |
| Likelihood ratio | 0.263 | 1 | 0.608 |                |
| Fisher’s exact test |               | 0.685 | 0.379 |                |
| Linear-by-linear association | 0.26 | 1 | 0.61 |                |
| Number of valid cases | 98 | | | |

0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.74, Computed only for a 2×2 table
on ankle edema and number of ER visits. We used STATA statistical analysis software (Manufacturer StataCorp, College Station, Texas, USA) and calculated significance with Pearson's Chi-square test for ankle edema [Tables 1 and 2] and number of ER visits [Tables 3 and 4] as shown in the tables which have been reproduced from our STATA output file.

As it can be seen from the [Tables 1-4], we did find significance in both the parameters.

We once again would like to thank the authors for their interest in our paper.

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Conflicts of interest
There are no conflicts of interest.

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