THE CLINICAL IMPACT OF ADOPTING NEW SPIROMETRIC REFERENCE EQUATIONS FOR OLDER PATIENTS

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Introduction Garcia-Rio (ERJ 2004; 24: 397) recently published new reference equations for spirometric predicted values in subjects aged 65-85. We investigated the clinical impact of using these newer equations in our population in terms of (1) spirometric values expressed as a percentage of the predicted values (%predicted); (2) the classification of these values as "below normal" (below 80% predicted).
Methods De-identified data from all patients aged 65 and over presenting to the respiratory laboratory January-November 2004 for spirometry were extracted. Reference equations currently used are from the European Community for Coal and Steel. New predicted values were calculated as per Garcia-Rio.
Analysis: (1) Bland-Altman plots of %predicted FEV1 and FVC based on both reference equations; (2) Assessment of agreement for classification into the "below normal" group (below 80% predicted) by a Kappa statistic.
Results Data from 564 patients were analysed (51.8% were males), mean age 74.2 years (SD 6.0, range 65 to 91 years). A Bland-Altman plot showed good agreement between the two measures of FVC. Kappa for classifying the FVC as abnormal was 0.86, with only 6.7% of the patients changing their classification.
For FEV1, the Bland-Altman plot suggests a bias with the new method giving lower values for FEV1 %predicted. This bias is greater with higher values of FEV1. The Kappa statistic for classifying the FEV1 as abnormal was 0.69: 15.4% of patients previously classified as normal would now be considered abnormal (less than 80% predicted). No patients previously classified abnormal would be considered normal using the new equations.
Conclusion As the new reference equations give higher predicted values for FEV1, adoption of the new equations will result in 15.4% of our patients being reclassified as having abnormally low FEV1. There was little impact on FVC interpretation.
Key words: spirometry, predicted, elderly.