Indian J Physiol Pharmacol 1998; 42 (4) : 567–568

LETTER TO THE EDITOR

MEASUREMENT AND INTERPRETATION OF PEAK EXPIRATORY FLOW

Sir,

(Received on May 5, 1998)

I read with interest an article regarding the peak expiratory flow (PEF) measurements in handloom weavers of Maharashtra in a recent issue of your Journal (1). The authors have evaluated PEF in 319 handloom weavers using Wright's peak flow meter, and compared these results with PEF of an identical number of age and sex matched controls. Although this study addresses important issues, I would like to point out a few deficiencies in the methods employed.

The authors have used an average of three readings while expressing PEF results. However, the PEF manoeuvre is extremely effort dependent and intrasubject variability may be significant in a given session of measurement. Therefore, current recommendations advise the use of the highest of atleast three acceptable readings while reporting PEF values (2–4). The use of an average value is likely to significantly underestimate the actual result in some of the subjects.

The authors have dichotomized PEF measurements into normal or reduced while performing a logistic regression analysis. They have used a cut-off predicted value derived from the regression equation for this purpose. However, I would like to point out that the predicted value from a regression equation is not the same as normal value for a given individual. The 'normal' is best described as a range (rather than a single point value), defined by the expression 'predicted value ± 1.645 RSD (or SEE)', where RSD and SEE are the residual standard deviation and standard error of estimate of the regression equation respectively (3, 5). A reduced PEF would thus be defined as a value less than the lower limit of this range. Many of the PEF values classified as 'reduced' in this present study are therefore likely to be normal. Further, the regression equations used by the authors were derived for an elderly population aged 55 years or more (6). Only 145 of the 319 subjects in each group in this study (45.45%) belonged to this age group. It is not advisable to extrapolate results of a regression equation defined for an elderly population to a much younger study group. Other regression equations describing normal PEF for healthy Maharashtrians over a much wider age range are available (7), and are better suited to such a study population.

ASHUTOSH N. AGGARWAL*

Department of Pulmonary Medicine,
Postgraduate Institute of Medical Education and Research,
Chandigarh – 160 012

REFERENCES

1. Tiwari RR, Zodpey SP, Deshpande SG, Vasudeo ND. Peak expiratory flow rate in handloom weavers. *Indian J Physiol Pharmacol* 1998; 42: 266–270.
2. Quanjer PH, Tammeling GJ, Cotes JE, Pederson OF, Yernault JC. Lung volumes and forced expiratory flows. Report Working Party Standardization of Lung Function Tests, European Community for Steel and Coal. Official statement of the European Respiratory Society. *Eur Respir J* 1993; 6 (Suppl 16): 5–40.
3. Guidelines for the measurement of respiratory function. Recommendations of the British Thoracic Society and the Association of Respiratory Technicians and Physiologists. *Respir Med* 1994; 88: 165–194.
4. American Thoracic Society. Standardization of spirometry: 1994 update. *Am J Respir Crit Care Med* 1995; 152: 1107–1136.
5. American Thoracic Society. Lung function testing: selection of reference values and interpretative strategies. *Am Rev Respir Dis* 1991; 144: 1202–1218.
6. Dikshit MB, Prasad BAK, Jog NV. Peak expiratory flow rates in elderly Indians. *Indian J Physiol Pharmacol* 1991; 35: 39–43.
7. Udwadia FE, Sunawala JD, Sheyte VM. Lung function studies in healthy Indian subjects. *J Assoc Physicians India* 1987; 36: 491–496.

*Corresponding Author