BELGIAN RESPIRATORY SOCIETY

THE USE OF THE "GLI" REFERENCE VALUES IN BELGIUM

A recommendation of the BeRS working group "Lung function & oxygenotherapy"

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Concerning the use of the GLI reference values for spirometry, diffusion capacity (transfer factor) and lung volumes, the working group "Lung function & oxygenotherapy" recommends a "preferred" strategy" and an "alternative strategy". In any case, the pulmonary function report should always clearly indicate which reference values are used and how they are implemented on the report.

PREFERRED STRATEGY

For spirometry, the GLI reference values (2012) can be applied to different ethnic groups (Caucasian, African-American, South-East and North-East Asian) till the age of 95 years. In subjects > 95 years, the proposed reference values are those corresponding with 95 years.

For TL,CO, the GLI reference values (2018) can only be applied to Caucasians till the age of 85 years. For subjects > 85 years, the proposed reference values are those corresponding with 85 years.

For lung volumes, the GLI reference values (2021) can only be applied to Caucasians till the age of 80 years. For subjects > 80 years, the proposed reference values are those corresponding with 80 years.

For TL,CO and for lung volumes in non-Caucasian subjects, the Caucasian values should be used.

The report should clearly state that:

- the GLI reference values are used
- the reference values for spirometry, TL,CO and lung volumes in the elderly are those of the oldest age range for which GLI still proposes reliable reference values
- reference values for TL,CO and for lung volumes in non-Caucasian subjects are those of Caucasians, but that, due to an undefined degree of uncertainty, these values should be used with extreme caution

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ALTERNATIVE STRATEGY

For spirometry, the GLI reference values (2012) can be applied to different ethnic groups (Caucasian, Africa-American, South-East and North-East Asian) till the age of 95 years. In subjects > 95 years, the proposed reference values are these corresponding with 95 years.

For TL,CO, the GLI reference values (2018) are applied to Caucasians till the age of 90 years, as the GLI tables provide data to generate values till that age. For subjects > 90 years, the proposed reference values are those corresponding with 90 years.

For lung volumes, the GLI reference values (2021) can only be applied to Caucasians till the age of 80 years. For subjects > 80 years, the proposed reference values are those corresponding with 80 years.

For TL,CO and for lung volumes in non-Caucasian patients, the Caucasian values should be used.

The report should clearly state that:

- the GLI reference values are used
- the reference values for spirometry, TL,CO and lung volumes in the elderly are those of the oldest age range for which still GLI still provide reference values
- reference values for TL,CO and for lung volumes in non-Caucasian subjects are those of Caucasians, but that, due to an undefined degree of uncertainty, these values should be used with extreme caution

Explanatory comments

- The GLI database contains S- and M-spline values allowing to calculate TL,CO till the age of 90 years *whereas* the official ERJ publication claims that the equations do not go beyond 85 years.
  Questioned by us on that issue, Sanja Stanojevic from GLI answered that "*the equations should only be used to age 85. We did have some data beyond 85, and the equations were derived based on the observed data but, given the limited number of observations, we recommend for the equations to be used up to 85".*

- If a lung function uses other reference values than the GLI, this should be clearly mentioned on the report. One Belgian pulmonary function lab uses its own reference values for lung volumes, which, incidentally, are strikingly similar to those provided by GLI.

- We do propose not to use "blank spaces", for missing reference values, as this is unworkable in clinical practice and might eventually increase the work load of the lung function personnel who might be requested to manually replace or look up the "missing" reference values for TL,CO and lung volumes.

- For the same reason, we suggest using the reference values for TL,CO and for lung volumes obtained in Caucasian subjects for subjects of non-Caucasian origin, provided the report clearly mentions that these should be used with extreme caution.

- Using the old ERS/ECCS values is not an option, as these do not cover subjects > 70 years.