Crimson Publishers
Wings to the Research

Mini Review

Reference of Intervals as Important Issue for Medical Laboratory Scientists

Mosab Nouraldein Mohammed Hamad[1]* and Musab Mohammed Mohammed Ali[2]

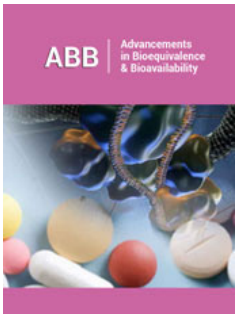
[1]Faculty of health sciences, Sudan

[2]Faculty of Medical Laboratory Sciences, Sudan

Abstract

Reference range is the values predictable for a healthy person. Three significant things to know about reference ranges: An ordinary result in one lab may be abnormal in another. Reference range affected by many factor ages, gender, race, analytical method and even the type of biological specimens. Purpose of appropriate reference range is a very immense problem facing laboratory professionals in large cities, where multiple ethnic groups live. Extensive studies must be conducted to solve this complicated problem.

ISSN: 2640-9275



***Corresponding author:** Mosab Nouraldein Mohammed Hamad, Faculty of health sciences, Sudan

Submission: May 20, 2019

Published: June 03, 2019

Volume 2 - Issue 5

How to cite this article: Mosab Nouraldein M H* , Musab M M A. Reference of Intervals as Important Issue for Medical Laboratory Scientists. Advancements Bioequiv Availab.2(5). ABB.000547.2019. DOI: 10.31031/ABB.2019.02.000547.

Copyright@ Mosab Nouraldein Mohammed Hamad, This article is distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use and redistribution provided that the original author and source are credited.

Introduction

The initial step in defining a reference range is to define the 'healthy' population. Reference intervals are recognized by taking the results of large numbers of healthy people and calculating what is typical for them. Factors such as age, gender and ethnicity can influence results, so often a sequence of reference intervals is established.

The reference interval for an exacting laboratory test is expressed as the average value for the 'normal' population group together with the variation around that value (plus or minus 2 standard deviations from the average). In this system, intervals correspond to the values found in 95% of individuals in the reference group. A consequence of this approach is that even in a 'normal' population a test result is outside the reference range in 5% of cases (1 in 20) [1].

Reference ranges are the most widespread decision support tool used for interpretation of numerical pathology information. As laboratory outcomes may be interpreted by comparison with these intervals, the quality of the reference intervals can play as large a role in result interpretation as the quality of the result itself.

Recommended basics of a process for establishing a reference range:

A. Describe the analyte (measured and) for which the reference range is being established, the clinical value, biological variation and main variations in form.

B. Identify the technique used, the accuracy base, and analytical specificity.

C. Describe significant pre-analytical reflections together with any actions in response to the interference.

D. Define the principle behind the reference range (i.e. central 95% etc.)

E. Describe the data source(s), together with number of subjects, nature of subjects, exclusions, pre-analytical factors, statistical measures, outliers excluded and analytical method.

F. Describe considerations of partitioning based on age, sex etc.

G. Define the number of significant figures, i.e. the degree of rounding.

H. Identify the clinical relevance of the reference limits.

I. Consider the use of widespread reference intervals.

J. Result and implementation [2].

In addition, we must consider the following points:

A. A normal outcome in one lab may be abnormal in another.

B. A normal outcome does not promise health

C. An atypical result does not mean you are ill [3].

To decide ranges, labs may carry out their own studies for the tests they perform, they may adopt reference intervals from test manufacturers or other labs, or they may gain reference ranges from existing patient data.

A. The most significant step in influential a reference range for any test is to define the reference population - the group of people who will be represented in the reference range. Depending on the test and factors that may manipulate its results, reference populations may be chosen based on age, gender, race, general health, and/or medical history.

B. Subsequently, a large number (minimum of 120) of people who fit the profile of the reference population are tested under nearly identical conditions, and the results are analyzed.

C. For a lot of tests, reference ranges include the values that are statistically analyzed and reported for the middle 95% of the reference population [4].

Reference ranges symbolize immense troubles in areas crowded with huge numbers of populations from dissimilar ethnic group to marked variability of many of essential parameters.

Widespread work must be conducted to attain suitable and flexible reference range to areas with different ethnic groups.

Acknowledgement

We are acknowledging all members in Medical academy whats app group for their valuable discussion and great ideas.

References

1. https://www.labtestsonline.org.au/understanding/overview-of-reference-intervals
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2556592/
3. https://labtestsonline.org/articles/laboratory-test-reference-ranges
4. https://labtestsonline.org/articles/laboratory-test-reference-ranges

For possible submissions Click below:

Submit Article

Copyright © Mosab Nouraldein Mohammed Hamad