Molecular Genetics and Metabolism Reports 21 (2019) 100511

Contents lists available at ScienceDirect

Molecular Genetics and Metabolism Reports

journal homepage: www.elsevier.com/locate/ymgmr

Correspondence

Response to comment on "High doses of biotin can interfere with immunoassays that use biotin-strept(avidin) technologies: Implications for individuals with biotin-responsive inherited metabolic disorders"

ARTICLE INFO

Keywords:
Biotin
Biotin interference
Biotin-response
Avidin
Streptavidin

To the Editor:

I thank Dr. Gheldof and his colleagues [1] for addressing my recent article about high-dose biotin interfering with biotin/streptavidin immunoassays [2]. I also thank them for informing others and me that there is a system that is commercially available (Veraprep Biotin by Veravas) and capable of absorbing biotin from serum/plasma samples of individuals who are taking high-dose biotin for various reasons [3]. It appears that this method is rapid, inexpensive and can be performed in essentially any laboratory. Therefore, they concluded that "convenient techniques exist to overcome the biotin interference and could be available in almost all clinical laboratories. It is also important to remind that the correct reporting of such interferences in clinical settings remains the responsibility of the clinical laboratory." This is an excellent development.

However, I do take issue with their conclusion. As I stated in my paper [2], my major reason for writing my article was to inform the patients, their families and their healthcare providers about the fact that high-dose biotin, such as that used to treat individuals with the inherited biotin-responsive disorders, are aware of the problem. Before writing the paper, almost all the parents and genetics and metabolic specialists I spoke to, who are caring for individuals with the biotin-responsive disorders, were unaware of biotin interference of immunoassays using biotin/streptavidin technologies.

I do agree with the authors of the Letter-to-the Editor that the correct reporting of laboratory results is the ultimate responsibility of the clinical laboratory. However, assuming that biotin-absorption technologies will be used specifically on samples from those known to be taking high-doses of biotin, and not everyone, then it is important, if not essential, that all the parties involved, including the patients, parents and healthcare providers understand the issue. They can proactively inform the laboratories that the sample is from an individual taking high-dose biotin, how much biotin they are taking daily, whether they have abstained from taking the biotin prior to having their blood drawn, and why they are taking high-dose biotin. Wouldn't it be helpful for the laboratory to know that the sample is from a child with partial biotinidase deficiency being treated with 5 mg of biotin per day vs. a child with holocarboxylase synthetase deficiency being treated with 20–100 mg of biotin per day vs. a child with biotin-thiamine-responsive basal ganglia disease being treated with over 300 mg of biotin per day? Disseminating information about biotin interference issues to the various parties involved will undoubtedly assist in guaranteeing that the laboratories are informed about which samples require biotin extraction. It will help to eliminate the possibility that the laboratory will fail to remove the biotin from a sample of an individual whose family or healthcare provider was unaware of the biotin interference issue and/or the importance of acknowledging the use of high-dose biotin, even if asked when submitting the sample. As a clinician, I know that the more knowledge and understanding that the various parties involved in the care of an individual have, the less likely that misunderstandings and mistakes will occur.

Declaration of Competing Interest

None.

References

[1] J. Favresse, D. Gruson, D. Gheldof, Comment on "High doses of biotin can interfere with immunoassays that use biotinstrept(avidin) technologies: implications for individuals with biotin-responsive inherited metabolic disorders.", Mol. Genet. Metab. Reports (2019).
[2] B. Wolf, High doses of biotin can interfere with immunoassays that use biotinstrept (avidin) technologies: implications for individuals with biotin-responsive inherited metabolic disorders, Mol. Genet. Metab. (2019).
[3] https://www.veravas.com/products/veraprep-biotin.

Barry Wolf
Division of Genetics, Birth Defects and Metabolism, Department of Pediatrics, Ann and Robert H. Lurie Children's Hospital of Chicago, Northwestern Feinberg School of Medicine, 225 E. Chicago, Chicago, IL 60611, United States
E-mail address: barrywolf1@comcast.net.

https://doi.org/10.1016/j.ymgmr.2019.100511
Received 18 August 2019; Received in revised form 22 August 2019; Accepted 23 August 2019
Available online 06 September 2019