

Evaluation of:

**Prevalence of glucose-6-phosphate dehydrogenase deficiency among neonates in Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, Nigeria: total antioxidant capacity and lipid peroxidation in G6PD deficient neonates**

**Abstract**

The Abstract must be reformed when modifying the related to the sample and the discussion.

The way to present the results on values of the measurements seems confusing. I suggest modifying it.

Lines 59 and 60: Previous studies in Nigeria documented a prevalence of 4- 26% for G6PD deficiency [11].

In Nigeria there are many ethnic groups. I suggest indicating whether such a wide variation is due to ethnic variations.

Line 65: I suggest that the concepts of Total antioxidant capacity and Lipid peroxidation be presented in a very summarized form, and that their relationship with the G6PD-deficiency be enunciated. The manuscript should not increase in size, since it is possible to reduce part of what is said about the G6PD and its deficiency.

Line 77: The ethnic composition of the group must be stated.

In these neonates, nothing is known about family history related to G6PD-deficiency?

Line 77: It is correct to refer to reference 12 for the purposes of sample size, but in the current document at least the statistical and epidemiological parameters and their values must be stated, which were used to calculate the sample size.

Is the sample chosen for convenience or at random? If it was random, how was it proceeded?

Ethnic issues should be included in the description of the sample.

Lines 81-85: **Commentary:** those measurement techniques are appropriate.

Line 51: "G6PD serves as dominant cellular defense against oxidative stress [Bhutani VK. Jaundice due to glucose-6-phosphate dehydrogenase deficiency. *Neoreviews*, 2012; 12(3). Available at <http://neoreviews.aappublications.org>]. In G6PD deficiency..."

G6PD is of utmost importance in erythrocytes. So, I ask why hemoglobin was not measured in neonates? It is very important to describe the color or appearance of the serum or plasma of the blood collected from the umbilical cord. This information is available?

Lines 115 and following: Discussion

The current content of the Discussion is appropriate from the technical point of view, but it is very poor from the epidemiological and scientific point of view. Why? Because it is dedicated to repeat what is known in the world about G6PD and about the frequency of the

deficiency of that enzyme in different countries, but it omits completely to refer to Nigeria and African countries that share many genetic and epidemiological aspects with Nigeria. What is the agreement or disagreement of the results with others known for Nigeria and African countries? A quick search in Pubmed ("Glucosephosphate Dehydrogenase Deficiency"[Majr] and Nigeria) allows to find references such as, for example, the following ones, which are almost all omitted in the manuscript and many of those references refer to neonates:

- Badejoko BO, Owa JA, Oseni SB, Badejoko O, Fatusi AO, Adejuyigbe EA. Early neonatal bilirubin, hematocrit, and glucose-6-phosphate dehydrogenase status. *Pediatrics*. 2014 Oct;134(4):e1082-8. PMID: 25246627.
- Orimadegun AE, Sodeinde O. Features and outcomes of malaria infection in glucose-6-phosphatedehydrogenase normal and deficient Nigerian children. *J Vector Borne Dis*. 2014 Mar;51(1):33-9. PMID: 24717200.
- Egesie OJ, Joseph DE, Isiguzoro I, Egesie UG. Glucose-6-phosphate dehydrogenase (G6PD) activity and deficiency in a population of Nigerian males resident in Jos. *Niger J Physiol Sci*. 2008 Jun-Dec;23(1-2):9-11. PMID: 19434206.
- Ademowo OG, Falusi AG. Molecular epidemiology and activity of erythrocyte G6PD variants in a homogeneous Nigerian population. *East Afr Med J*. 2002 Jan;79(1):42-4. PMID: 12380870.
- Carter N, Pamba A, Duparc S, Waitumbi JN. Frequency of glucose-6-phosphate dehydrogenase deficiency in malaria patients from six African countries enrolled in two randomized anti-malarial clinical trials. *Malar J*. 2011 Aug 17;10:241. PMID: 21849081.
- May J, Meyer CG, Grossterlinden L, Ademowo OG, Mockenhaupt FP, Olumese PE, Falusi AG, Luzzatto L, Bienzle U. Red cell glucose-6-phosphate dehydrogenase status and pyruvate kinase activity in a Nigerian population. *Trop Med Int Health*. 2000;5(2):119-23. PMID: 10747271.
- Slusher TM, Vreman HJ, McLaren DW, Lewison LJ, Brown AK, Stevenson DK. Glucose-6-phosphate dehydrogenase deficiency and carboxyhemoglobin concentrations associated with bilirubin-related morbidity and death in Nigerian infants. *J Pediatr*. 1995 Jan;126(1):102-8. PMID: 7815196.
- Owa JA. Relationship between exposure to icterogenic agents, glucose-6-phosphate dehydrogenase deficiency and neonatal jaundice in Nigeria. *Acta Paediatr Scand*. 1989 Nov;78(6):848-52. PMID: 2603709.
- Mgbodile M, Onyeausi JC. Further studies of haemoglobin glycosylation: influence of diabetes mellitus and glucose-6-phosphate dehydrogenase deficiency in Nigerians. *Cent Afr J Med*. 1988 Jan;34(1):4-7. PMID: 3219715.
- Dawodu AH, Owa JA, Familusi JB. A prospective study of the role of bacterial infection and G6PD deficiency in severe neonatal jaundice in Nigeria. *Trop Geogr Med*. 1984 Jun;36(2):127-32. PMID: 6474557.
- Gilles HM, Fletcher KA, Hendrickse RG, Lindner R, Reddy S, Allan N. Glucose-6-phosphate-dehydrogenase deficiency, sickling, and malaria in African children in South Western Nigeria. *Lancet*. 1967 Jan 21;1(7482):138-40. PMID: 4163314.

I suggest, in a respectful way, that the authors focus their discussion 1) to compare their results with those of other works in Nigeria and African countries; 2) to analyze their

data according to the epidemiology of G6PD-deficiency in Nigeria and similar countries; 3) to point out the strengths and weaknesses of their research (which are not indicated anywhere) and, 4) with less intensity, to repeat what is already known about the enzyme and its behavior in other non-African countries. This new approach will provide not only the G6PD deficiency data in Nigeria to the scientific world, along with the TACs and other measurements, but it will allow an adequate interpretation and perspective of such data.

I ask the Journal to publish the work when it is adjusted and to encourage the authors to accept these respectful and cordial suggestions.