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Letter to Editor

Internal Medicine Section

Correspondence: Role of Anaemia and Magnesium Levels on the Sputum Smear Conversion among Pulmonary Tuberculosis Patients

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Keywords: Anti-tubercular therapy, Haemoglobin, Serum magnesium

Dear Editor,

We read with much interest the article by Agrawal Y et al., published in the June, 2017 issue of your journal [1]. We would like to make the following comments, clarification to which would benefit the general readers of JCDR.

1. The aim of the study was stated "To study the effect of anaemia and serum magnesium levels on sputum conversion in pulmonary Tuberculosis (TB) patients". In this context, the utility of recruiting sputum smear negative pulmonary tuberculosis (PTB) patients and healthy age and sex matched controls was not clear. To find out any risk factors associated with failure of sputum smear conversion after therapy, the patients who had a sputum smear conversion should have been compared with those who failed to achieve such conversion. Being a hospital based study, one would also be curious to know how these 'healthy' controls were recruited.
2. The methodology mentions the study to be a "case-control study". But looking at the aim and methodology, it seems to be an 'observational, cohort study' [2]. As a cohort of smear positive pulmonary TB patients were followed up with measurements done at the start and after two months of therapy. The other two groups, namely, sputum smear negative PTB and healthy controls were not of much use in answering the research question.
3. There was no information on the serum iron and ferritin levels used for the diagnosis of iron deficiency. Similarly, the cut for hypomagnesaemia was also not mentioned.
4. The utility of performing blood urea, serum creatinine, serum sodium, serum potassium, serum total calcium, Aspartate Transaminase (AST) and Alanine Transaminase (ALT) in the context of the present study was not clear. Moreover, as these tests are not performed routinely in patients with PTB (either sputum smear positive or negative) prior to starting Anti-Tubercular Therapy (ATT) as per Directly Observed Short-Course Therapy (DOTS), performing them just for the sake of present study, wherein also they do not serve much purpose doesn't seem justifiable.
5. The results first mention that "Delayed sputum smear conversion occurred in 12 (12%) sputum positive PTB patients. Eight of these patients had severe iron deficiency anaemia while four had moderate anaemia". However, it is mentioned and also presented in [Table/Fig-4] that "Out of total 21 severely anaemic sputum positive PTB patients, 12 had delayed conversion of sputum smear. Eight of the sputum positive PTB patients had delayed conversion of sputum smear among 71 patients having mild to moderate anaemia". This makes the total number of patients with delayed sputum smear conversion as 20 (12 with severe anemia and 8 with mild to moderate anemia)! Furthermore, the authors mention that "Thus, this delayed conversion was found to be statistically highly significant ($p<0.001$) [Table/Fig-4]". But this sentence doesn't seem to make any sense as neither [Table/Fig-4] present any such statistical tests being applied nor it was clear between which groups this comparison was made.
6. Finally, the authors conclude by stating that "Sputum was found to be positive even after two months of ATT course because of baseline anaemia and lower levels of serum magnesium." It was very brave and incorrect to make such causal association from an observational study, where even other factors affecting sputum smear conversion (high smear grading, milliary TB, cavitatory lesions, duration of symptoms, smoking, diabetes, etc.,) were not studied [2-5].

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