Clinicians’ response to red cell parameters on automated blood counts indicative of thalassemia trait

Sir,

The most important measure for the control and prevention of thalassemia is early identification and counseling of its carriers. The distinction between beta thalassaemia trait and
other causes of microcytosis is of great importance, as it has the potential of preventing the birth of a baby with homozygous thalassemia syndromes. \cite{1,3} Optimal use of automated blood counts can aid in the identification of these carriers. However, clinicians at times overlook abnormalities in data from automated analyzers. \cite{4,5}

We conducted a retrospective survey of complete blood counts from 50,000 case records of inpatients and outpatients in a tertiary care teaching institution in North India. Their red cell parameters were reviewed for compatibility with the diagnosis of beta thalassemia trait. The criteria considered for the diagnosis of thalassemia trait included: RBC count greater than 5 x 10\(^{12}\)/l; mean corpuscular volume of 70fl or less, mean corpuscular hemoglobin of 25pg or less and a normal (12.7-16.3%) or near normal (up to 17%) red cell distribution width derived from the reference range in our laboratory.

One hundred and thirteen patient records amongst those reviewed raised the possibility of thalassemia trait. Ninety-three of them belonged to ethnic groups (Jat Sikhs, Khatri, Muslims and Aror as) with a known higher frequency of the beta thalassemia gene as compared to the general population. These reports were reviewed by technicians (all reports), trainee resident doctors in hematology (50 reports) and by clinicians (senior consultants 15 records, junior consultants 19 and resident doctors 38, the grade of clinicians who had reviewed 41 reports could not be ascertained). Only one record was identified by a trainee hematology resident doctor. Ninety-five of the 113 reports of subjects with parameters suggestive of carrier state were ignored by clinicians. Although there were 18 patients in whom abnormal red cell parameters were noted by the clinicians, additional evaluation for ruling out the thalassemia heterozygous state was carried out in only 11 patients. Of these, hemoglobin electrophoresis was ordered in nine patients and in eight, the beta thalassemia trait was confirmed. In the remaining patient, the report was not documented. In seven patients, the abnormal red cell parameters were misinterpreted as iron deficiency. In only one of these cases, documentation of the deficiency by estimation of ferritin levels, was done before starting iron therapy while five patients were empirically started on iron.

The survey showed that clinicians failed to recognize features suggestive of the thalassemia trait obtained through automated investigations in the vast majority of patients with these abnormalities. Even when these abnormalities were noted, investigations to confirm the carrier state were not carried out in every patient. This denotes that clinicians are ignorant about the fact that data obtained from investigations can be used for determining the thalassemia trait status and/or are not aware of the importance of determining this status from the point of view of genetic counseling that can be offered. The fact that carriers are asymptomatic might be influencing the clinicians’ outlook. Greater emphasis must be laid on the identification of abnormal red cell indices and their clinical utility. To ensure that abnormal reports suggesting beta thalassemia are not ignored by clinicians, such reports could be stamped with an alert message. Interpretative reports rather than numerical data alone should be made available to the clinicians.

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**References**