Absence of Hemoglobinopathies and G6PD deficiency among the Jarawas, a primitive negroid tribes of Andaman and Nicobar Islands

Kanchan M. Murhekar, Manoj V. Murhekar
Regional Medical Research Centre (ICMR), Post Bag - 13, Port Blair - 744 101, Andaman and Nicobar Islands, India.

Sir,

Andaman and Nicobar Islands are the home to six primitive endogamous tribes namely Great Andamanese, Jarawas, Onges and Sentinelese belonging to Negrito race and Shompens and Nicobarese of Mongoloid race. Jarawas, the classical hunter-gatherer tribes were living in isolation since several centuries. They did not have friendly relations with non-Jarawa people and were hostile to outsiders. Because of this, very little is known about this tribe. Since last 3 – 4 years, Jarawas have started to come out of their habitat shedding their hostility and are mixing with non-Jarawas. Their estimated population is about 250.

Outbreaks of febrile illnesses like measles, mumps, community acquired pneumonias have been reported amongst them since their coming in contact. No genetic data is available on the Jarawas. Recently there was an outbreak of malaria among the Jarawas. The centre was a part of the team, which investigated the outbreak. We have screened 54 blood samples from Jarawas to look for the presence of abnormal hemoglobins, β-thalassemia and G6PD deficiency.

Red cell lysates were prepared and run on cellulose-acetate membranes at pH 8.9 to detect abnormal hemoglobins. Quantitation of HbA₂ was done by anion exchange micro-column chromatography. Fetal hemoglobin was measured by alkali denaturation test. Presence of sickle hemoglobin was tested by solubility test. Screening for G6PD deficiency was done by the dichlorophenol-indophenol dye decolourization test.

Seventeen of the 54 Jarawas (31.5%) had mild degree of anemia (Hb 10 to 12 g/dl) and 9 (16.7%) had moderate degree of anemia (Hb 7 to 9.9g/dl). Sickling test was negative in all the Jarawas. Hemoglobin electrophoresis showed AA pattern and no abnormal hemoglobin were detected. The HbA₂ (range:1.3% - 3.1%) and HbF (range: 0.1% - 1.5%) were normal in all the individuals. None of the 54 samples were G6PD deficient.

Hemoglobinopathies are commonest single gene disorders in Indian subcontinent and high frequencies of sickle cell gene have been reported in many Indian tribes. Abnormal hemoglobins and G6PD deficiency have also been reported in Great Andamanese, a Negrito tribe of these islands. However, findings of the present investigations indicate absence of hemoglobinopathies and G6PD deficiency among the Jarawas. Absence of G6PD deficiency among them assumes significance especially in the context of recent outbreak of malaria, as G6PD deficient individuals are sensitive to wide range of antimalarials, anti-inflammatory analgesic drugs which could result in severe episodes of haemolysis. Though none of these abnormalities were detected among the Jarawas, further studies on other genetic polymorphisms could throw light about the probable migrations and admixtures of this
isolated tribe.

Acknowledgment

Authors are grateful to Prof. S. C. Sehgal for encouragement and guidance.

References

3. Huntsman RG, Barclay GPT, Canning DM and Yawson Gl. A rapid whole blood solubility test to differentiate the sickle cell trait from sickle cell anemia. J of clin pathol 1970;23:781.