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Editorial

Sickle Cell Disorder and their relation to Geographical location: - Relevance to malaria and comprehensive care programs at local and global level

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Sickle cell disease (SCD) though initially restricted to certain geographical places, now has become a global problem due to migration.[1, 2] Epidemiology of SCD is same as malaria, which is considered to be a disease of tropics. World distribution of sickle gene has remained same like that of past and present malaria.[3] Sickle gene is thought to be result of mutation to protect local community from death due to plasmodial disease.[3] Thus, relationship between malaria and genetic disorders like thalassemia, Sickle cell disorder and glucose-6-phosphate dehydrogenase deficiency (G6PD) is an example of interaction of gene with environment.[3,4,5] Mediterranean region, Africa and Asia which has archives of high malaria prevalence is also native for hemoglobinopathies. Migration and resettlement of communities has made SCD, a global problem which is common in America, Australia and Europe, as well.[1]

Continent of Africa has high prevalence of malaria as well as SCD. As per WHO, in 2015, 214 million new cases of malaria were reported of which 88% were in Africa.[6] SCD is also very common in Africa, where 3% of newborn are affected and high mortality (50%–90%) is reported among African children with SCD.[7,8] In retrospective hospital based study from The Democratic Republic of Congo, Africa, 90 children of malaria with SCD (homozygous) were admitted. This 10 years study concluded that children below 5 years were at higher risk for acute crises due to malaria. They may need blood transfusion and anti-malarial prophylaxis.[9] evidences are also available to suggest that sickle cell trait (SCT) is giving protection against malaria mortality and morbidity. It also prevents from heavy parasitaemia and severe anemia due to malaria.[10] However, protection offered is not complete.[9] Malaria- endemic countries who have also high prevalence of SCD, should adopt malaria prophylaxis policy especially for children.[3] In Africa, for comprehensive care, screening, prophylaxis, and treatment of SCD is recommended, however large population based study may tell us about estimate of preventable child deaths by interventions policy and its cost benefit advantage.[7] Again guidelines regarding malarial antiprophylaxis need more precision in varied groups like children, pregnant females, diabetics and immune compromised population.

10% of 214 million new cases of malaria occurred in South-East Asia Region and 2 % in Eastern Mediterranean Region, as per WHO data of 2015.[6] Thus like African countries, Southeast Asia and

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Mediterranean regions where SCD and malaria are common, require clear policy in regards to malaria as well as for SCD-Comprehensive care. Tailor made policy for different clinical setting in different geographical region is a need of the community. Malaria transmission in these regions is not throughout the year and so giving anti-malarial prophylaxis during transmission season can be adopted with long acting drug regimen and is considered effective and safe.[11] However drug resistance, reduced compliance, finances, age and other host and geographical factors may be a problem which needs further research.[12]

Apart from malaria care which will be locally different, should there be different models for comphrensive care for sickle patients in diverse regions?[13] SCD from different geographical locations have variability in presentation, in splenic function and size, risk factors, comorbidities, amount of fetal hemoglobin and many more. Role of fetal hemoglobin and its relation with severity of falciparum malaria in adult patients having SCD is reported.[14] Thus local policy in relation to SCD may and should vary. Government and voluntary agencies may need more evidence generation to develop support system and comprehensive care plan as per local need.[15] We at Sumandeep Vidyapeeth, as a part of EviGenCHIP programme have developed multidisciplinary sickle research project to find out evidences for future management protocols.[16,17] There is a need for more research inputs, epidemiological data and population-based sickle cell registry at local level for this community problem. This may be needed for efficient health services at local and global level.

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