LETTER TO THE EDITOR

Urgent need for new-born screening and clinical awareness of homocystinuria in Pakistan

Muhammad Rizwan Farooq[1], Romaisa Sultan[2]

Dear Editor, I wish to draw attention to an under-recognised but significant metabolic disorder, homocystinuria, which remains vastly underdiagnosed in Pakistan. Through personal observation, I have encountered three cases within my extended family, all diagnosed after irreversible neurological and physical complications had already set in. These cases reflect a broader systemic gap in early detection and clinical awareness.

Homocystinuria, an autosomal recessive disorder of methionine metabolism, often presents with developmental delays, ectopia lentis, skeletal abnormalities, and thromboembolic events.[1] Crucially, its clinical features usually manifest around 5–6 years of age, by then, brain damage may already be irreversible. This delay in diagnosis is tragically common in resource-limited settings like ours, where homocystinuria is not part of standard newborn screening programmes.[2]

Globally, countries with routine newborn screening and physician education programmes have reported significant improvements in early diagnosis and outcomes.[3] For example, Qatar reports a prevalence as high as 1 in 1,800 births due to high consanguinity and effective national screening programs.[4] In contrast, in Pakistan, lack of data and screening may be hiding a growing burden. Sixty to seventy percent of marriages in Pakistan are consanguineous (mostly first-cousin marriages), one of the highest rates globally.[5]

Moreover, awareness among general practitioners and paediatricians remain low, contributing to late referrals and misdiagnosis. These challenges necessitate immediate interventions.

I strongly urge health authorities and policymakers to:

1. Include homocystinuria in national newborn screening protocols, especially in high-risk populations.
2. Launch continuing medical education (CME) programs to raise awareness among paediatricians and primary care providers.
3. Encourage reporting and data collection on diagnosed cases to understand local prevalence.
4. Integrate genetic counselling into maternal and child health programmes.
5. Implement mandatory premarital counselling for families with a history of genetic disorders.
6. Raise awareness through media, community health workers, and school education.
7. Train more professionals in clinical genetics and metabolic diseases.
8. Early detection can be life-changing, preventing long-term disability and enabling timely dietary and pharmacological interventions. We must not allow a treatable disorder to continue inflicting preventable harm on our children.

Disclaimer: None.

Conflict of interest: None.

Funding disclosure: None.

DOI: https://doi.org/10.47391/JPMA.31540

References

1. Mudd SH, Levy HL, Kraus JP. Homocystinuria due to cystathionine β-synthase deficiency: natural history, genetic basis and treatment. N Engl J Med. 2001;345:1753–63. doi:10.1056/NEJMra010078
2. Saleem AF, Anwar Z, Anwar S, Khan HI, Ali S. Inborn errors of metabolism in Pakistan: current perspectives. J Pak Med Assoc. 2010; 60:997–1001.
3. Huemer M, Kožich V, Rinaldo P, Baumgartner MR, Merinero B, Pasquini E, et al. Newborn screening for homocystinurias and methylation disorders: systematic review and proposed guidelines. J Inherit Metab Dis. 2015;38:1007–19. doi:10.1007/s10545-015-9830-z
4. Al-Qattan MM, Alabdullatif W, Alkuraya FS. Homocystinuria in the Middle East: a review of genetic and clinical presentation. Med Princ Pract. 2020;29:99–106.
5. Qidwai W, Azam SI, Ali BS, Ayub S. Public awareness about consanguineous marriage and associated risks in Pakistan. BMC Public Health. 2011;11:746. doi:10.1186/1471-2458-11-746

[1]Department of Medicine, Social Security Hospital, Maternal, Neonatal and Child Health, Lahore, Pakistan; [2]Department of Medicine, Fatima Memorial Hospital, Lahore, Pakistan.

Correspondence: Muhammad Rizwan Farooq. e-mail: rizwan.farooq18@gmail.com
ORCID ID: 0009-0003-0851-4188

Submission completed: 25-06-2025 **1st Revision received:** 03-07-2025
Acceptance: 04-10-2025 **Last Revision received:** 03-10-2025

Author Contribution:

MRF: Concept, design, data collection, interpretation, drafting, revision, final approval and agreement to be accountable for all aspects of the work.

RS: Data collection, drafting, editing, final approval and agreement to be accountable for all aspects of the work.