

## Factors for early death in rabies- the bitter truth

Sir,

Early death phenomenon in rabies reported by Sadeghi *et al.*<sup>[1]</sup> is informative and has long been recognized in patients whose incubation period is shorter than average in patients who were inadequately vaccinated with or without accompanying immunoglobulin and develop rabies.<sup>[2]</sup> However, we would like to recall other factors related to virus, patients, therapeutic agents, and care providers contributing to early death, so as to introduce appropriate measures to ensure quality in service and enforce patient safety.

The high viral load inoculated at the site of bite, which infects motor endplates and motor axons without previous replication in the muscle and its virulence. Those related to patients are anatomical site of bite such as head and neck,<sup>[3]</sup> or bite in highly innervated areas such as fingers as noted in this case,<sup>[1]</sup> which has close proximity to central nervous system, and nonfeasibility to infiltrate adequate dose of human rabies immunoglobulin (HRIG). Next is the functional status of the immune system, which may be immune enhancement or "early death" phenomenon through B cells during the incubation period, and/or nonspecific immunosuppressive effect following rabies infection. Rabies nucleoprotein acts as a weak superantigen, and directly induces proliferation of

human CD4 Th2 cells bearing the V8 TCR, which suppresses the immunity through polyclonal antibody response.<sup>[4]</sup>

Matters related to therapeutic agents are questionable status of the potency of vaccine and HRIG, due to inherent technical constraints and electricity problems in countries such as India. Certain important factors related to health care providers are nonadherence to World Health Organization (WHO) postexposure prophylaxis protocol. Furthermore, health care providers should avoid prescribing antimalarials and other drugs that interfere with the effectiveness of rabies vaccine or HRIG.

To overcome these, we need identification of other responsible factors so as to empower the health care providers for effective services and community health education.<sup>[5]</sup> Our motto shall be "no death due to rabies" through community education, early intervention, quality assurance of therapeutic agents, and adherence to WHO protocol.

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**References**

1. Sadeghi M, Moallem SA, Yousefi-Abdolmaleki E, Montazeri M. The rabies early death phenomenon: A report of ineffective administration of rabies vaccine during symptomatic disease. *Indian J Crit Care Med* 2015;19:422-4.
2. Prabhakar BS, Nathanson N. Acute rabies death mediated by antibody. *Nature* 1981;290:590-1.
3. Wilde H. Failures of post-exposure rabies prophylaxis. *Vaccine* 2007;25:7605-9.
4. Thoulouze MI, Lafage M, Montano-Hirose JA, Lafon M. Rabies virus infects mouse and human lymphocytes and induces apoptosis. *J Virol* 1997;71:7372-80.
5. Suraweera W, Morris SK, Kumar R, Warrell DA, Warrell MJ, Jha P; Million Death Study Collaborators. Deaths from symptomatically identifiable furious rabies in India: A nationally representative mortality survey. *PLoS Negl Trop Dis* 2012;6:e1847.

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