

Editorial

Administering equine rabies immunoglobulin to rabies exposed patients

Rabies continues to be a fatal infectious disease in the 21st century. In Asian countries, where stray dogs and cats are often found on city and village streets, the risk of human rabies can be virtually abolished by postexposure prophylaxis (PEP) [1]. The World Health Organization (WHO) guidelines for severe mammalian bite wounds from a known or possibly rabid animal in a rabies endemic region, includes washing of the wound, and careful and thorough injection of wounds with human or equine rabies immunoglobulin (RIG) followed by administration of rabies vaccine [1]. Despite explicit guidelines on how to manage exposure by the WHO and others, human rabies deaths continue to be reported from many parts of the world. Purified equine rabies immunoglobulin (ERIG) is often used in Asia rather than human immunoglobulin (HRIG). The latter is approximately ten times as expensive as ERIG and often not even available. The practice of injecting wounds is a rather unusual method in medicine, yet proven essential in severe exposures. There is really no similar procedure for any other kind of wound care and doctors may be reluctant to use it [2].

Two papers in this issue, one by Shankaraiah et al. [3] and another Salahuddin et al. [4], address actual RIG utilization by physicians in rabies endemic regions. Health care practitioners in India, Pakistan, and Thailand were surveyed concerning their attitude and practice of using ERIG or HRIG in severe bite wounds from possibly rabid animals (**Table 1**). The findings revealed real deficiencies. While virtually all doctors would administer rabies vaccine, almost 20% would not use ERIG, leaving the patient with vaccination alone and at increased risk of death. Cost is an important concern, as half of the physicians surveyed considered ERIG expensive. Moreover, HRIG is often out of reach in this part of the world. Despite this concern, a number of physicians would use only HRIG. If it is not available or affordable, no RIG is administered or the patient is referred to an “expert center”. This usually implies that no immunoglobulin will be used. The surveys indicated that there seem to be two groups

of physicians, who had differing attitudes toward RIG. A large group would use ERIG as safe and effective for high-risk bite wounds if available. The rest perceived wound injection of ERIG as a potential cause of anaphylaxis and a cause of local reactions and more pain for the patient. These results are relatively consistent among the reports from India, Pakistan, and Thailand [3, 4]. The reason for wound injection is that it takes 7 to 10 days for a vaccination to result in an adequate circulating antibody response that can neutralize the virus at the wound sites. If the virus is inoculated close to a nerve, it may enter the nerve and advance to the CNS in a partly immune protected environment. Most human rabies deaths today (about 55,000 worldwide) are either the result of lack of any postexposure treatment or no immunoglobulin use or that RIG not injected into the wound sites [1, 2].

It has been proposed to develop an international repository for HRIG and ERIG that can respond rapidly to an emergency outbreak in a remote region. This is a commendable plan and may be a salvation in some rare situations where ERIG or HRIG cannot be ordered from a nearby international or regional manufacturer and delivered speedily. There are very few, if any, locations in Asia where the country does not have access to a representative of a manufacturer or is actually making ERIG. Providing ERIG or HRIG for free in such an emergency setting would be of real benefit. However, our studies demonstrated that it is often the reluctance to order and use ERIG or HRIG as recommended by WHO that is killing patients. Perhaps funds for the establishment and staffing of such repository sites might be a better use. Ideally, a very good project would be to support on-site training of health care providers who care for animal bite victims and, preferentially, help them to centralize such facilities. This is an increasing important trend in Thailand, Philippines, Sri Lanka, and India that should be expanded.

From these surveys, it is evident that there are gaps in physician's attitude toward the use of RIG even in severe bite wounds. Although most physicians are familiar with and will follow current rabies guidelines, not everyone does. This issue continues to be responsible for human rabies deaths.

Table 1. Physician's attitudes and the use of purified equine rabies immunoglobulin (ERIG) (very disturbing statistics)

Concerns	Thailand	India (n = 109)	Pakistan (n = 103)
Will not inject wounds but refer patients	26 (24%)	36 (33%)	36 (35%)
Would only vaccinate and not administer ERIG	18 (17%)	29 (27%)	25 (24%)
Physicians are concerned with the high cost of ERIG	51 (48%)	n/a	57 (55%)
Physician would only use HRIG	22 (21%)	n/a	74 (71%)

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References

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