# Editorial

## Tetanus and rabies eradication in Pakistan; a mission not impossible

Mohammad Wasay[1], Ismail A. Khatri[2], Naseem Salahuddin[3]

Department of Medicine[1,3], The Aga Khan University, Karachi, Section of Neurology[2], Shifa College of Medicine & Shifa International Hospital, Islamabad.

Tetanus and rabies are two potentially preventable diseases that have been eradicated from many countries of the world. They still take a heavy toll of human life in the developing world. According to World Health Organization (WHO) reports, rabies causes at least 55,000 annual deaths worldwide, of which 56% occur in Asia and 44% in Africa[1]; and the estimated worldwide deaths from tetanus were 213,000 in 2002 including 198,000 in children under 5 years of age including neonatal tetanus.[2] A total of 610 cases of tetanus were reported from Pakistan in 2006.[3] Tetanus and Rabies are both non reportable diseases in Pakistan and incidence is grossly under reported. There is no specific treatment for rabies and once established it remains a universally fatal disease, whereas mortality from tetanus approaches close to fifty percent in developing countries like Pakistan.[4]

One of the most important aspects in success of any prevention program is the correct understanding of the program. Even though extensive efforts are made to spread the message of prevention programs, the overall knowledge, attitude, and practices are dismal. In one survey from Karachi, only 25% of general practitioners had correct knowledge about pre-exposure and 13% had correct knowledge about both pre- and post-exposure tetanus immunization.[5] The same study suggested that only 2% practitioners were practicing the post-exposure immunization correctly.[5] In a more recent survey of reproductive age women about tetanus toxoid vaccine, 81.3% participants had inadequate knowledge; 12.5% had incorrect knowledge, and 6.3% had no knowledge.[6] The same survey revealed that 28 out of 54 participants (52%) were not concerned about tetanus toxoid vaccination [6]. This study further revealed that of those who were vaccinated, only 40.6% were properly vaccinated. Another study published from Peshawar showed 65% vaccination rate among the women of reproductive age, however, the study did not comment on proper or improper vaccination.[7] Currently global DTP3 coverage is estimated at 79% by WHO.

Neonatal tetanus remains a high contributor to infant mortality in Pakistan. Refusal to feed and poor sucking, convulsions, locked jaw, and opisthotonus are the major clinical features. Multitude of factors have been associated with the risk for developing neonatal tetanus. One case control study found application of substances on the umbilical cord, home delivery, and illiterate mother as independent risk factors for neonatal tetanus.[8] A very recent study from a large tertiary care hospital in Lahore reported 100% mortality among premature neonates with tetanus, and 44% mortality in full term neonates.[9] In this study, 80% of the neonates were home delivered with 88% mothers not being vaccinated against tetanus. The umbilical cord was cut with a blade in 60% and desi ghee (butter) applied to 20% umbilical stumps.

The scenario for rabies is even more disappointing. Even though no population based studies are available from Pakistan, rabies incidence was estimated at 7 to 9.8 cases per million population annually in Karachi.[10] Two studies published from Karachi.[10,11] showed that none of the victims received rabies immunoglobulin which is a WHO

recommendation after severe exposure to rabies[1], and is the only hope for survival if administered immediately along with efficacious vaccine. Most of the affected victims were given nerve tissue vaccine and in the larger study of 40 patients, 23% did not receive any vaccination.[10,11]

In the above scenario, it becomes imperative that current practices should be re-evaluated and measures be taken to eradicate these preventable deaths. Even though difficult this is not impossible as many other developing countries have been able to achieve this goal. There is a need for a better surveillance system for early identification of all patients with suspected tetanus and rabies. Exclusive tetanus and rabies centers at the district or divisional level should be established where not only the suspected patients are managed by properly trained staff, but these centers also act as epicenters for education of masses about these diseases, assurance of appropriate preventive coverage with EPI vaccines in the whole district population, and surveillance and reporting of these diseases. These centers should be equipped to make appropriate diagnostic evaluation including antibody testing.

In the current infrastructure, union council nazims should also take the responsibility of health education, and mass vaccination. The WHO goals of immunization can only be achieved by contribution both from government and public. Periodic visits by appropriately trained staff to schools and colleges can make significant contribution to health education not only for vaccine preventable diseases, but also for other health related issues. At the time of school and college admissions and job interviews, it should be made mandatory that appropriate vaccination is proven.

Medical colleges and teaching hospitals should take the responsibility of proper education of physicians, in particular general practitioners and other health care professionals about knowledge, attitude, and practices (KAP) of vaccine preventable diseases. The available literature suggests that we fall way behind the targets as far as the KAP of our general practitioners are concerned. Public awareness and physician awareness programs should be run on regular basis. Continuing education is the only way to assure that practices meet the standards. Professional societies especially for family physicians and general practitioners could play an important role in physician's awareness.

The policy makers should ensure that these ailments get high priority on their list and appropriate budgets allocated to ensure the availability of vaccines and immunoglobulins. In two studies, none of the rabies victim received immunoglobulins.[10,11] Approximately 3/4th of patients at dedicated tetanus unit do not receive human immunoglobulins only because of cost issues.[12]

It is time that national tetanus and rabies eradication programs are established. General practitioners are usually the first contact of the affected patient. They should be fully aware of the symptoms, signs, initial management, and appropriate referral points for tetanus and rabies. The use of electronic media especially television and radio channels and news paper advertisement by health care authorities are the most important means of mass awareness. The district/divisional level dedicated centers should be fully equipped with appropriately trained personnel, vaccines, immunoglobulins, and supportive care needs. Immunization coverage for tetanus should be assured at all levels. The recently suggested WISE approach with a focus on wound washing (W), injecting immunogenic vaccines and immune globulins (I), and stray dog euthanization (SE) is implemented to prevent the painful deaths from rabies.[13]

This is a difficult mission but is not impossible. Sincere efforts, appropriate policies, and acting in anticipation can eradicate these painful and life threatening diseases from Pakistan.

## References


1. http://www.who.int/rabies/epidemiology/Rabiessurveillance.pdf Accessed on November 1, 2007
2. http://www.who.int/immunization_monitoring/diseases/GS_TT.pdf Accessed on November 1, 2007
3. http://www.who.int/immunization_monitoring/en/globalsummary/timeseries/tsincidencette.htm Accessed on November 1, 2007.
4. Khichi GQ. Tetanus neonatorum in Bahawalpur. Pak Paed J 1997; 21:31-6.
5. Ahmed SI, Baig L, Thaver IH, Siddqui MI, Jafery SI, Javed A. Knowledge, attitudes and practices of general practitioners in Karachi District Central about tetanus immunization in adults. J Pak Med Assoc 2001; 51: 367-9.
6. Zeb A, Zaidi SA, Jehan I. Knowledge, attitude and practices of reproductive age females about tetanus toxoid vaccine: a pilot study. J Coll Physicians Surg Pak 2006; 16: 791-3.
7. Afridi NK, Hatcher J, Mahmud S, Nanan D. Coverage and factors associated with Tetanus Toxoid vaccination status among females of reproductive age in Peshawar. J Coll Physicians Surg Pak 2005; 15:391-5.
8. Raza SA, Akhtar S, Avan BI, Hamza H, Rahbar MH. A matched case-control study of risk factors for neonatal tetanus in Karachi, Pakistan. J Postgrad Med. 2004; 50: 247-51.
9. Shah AA, Ali AS, Hussain RR, Hussain A, Saeed A, Butt TK. Complications and outcome of neonatal tetanus. Pak Paed J 2007; 13: 126-31.
10. Parviz S, Chotani R, McCormick J, Fisher-Hoch S, Luby S. Rabies deaths in Pakistan: results of ineffective post-exposure treatment. Int J Infect Dis 2004; 8: 346-52.
11. Salahuddin N, Jawad M. Human Rabies: experience of eight cases at Liaquat National Hospital, Karachi. Infect Dis J 2000; 9: 23-4.
12. Raza MA, Abbas MH. Tetanus disease patterns observed in a specialized unit. J Coll Physicians Surg Pak 2000; 10: 249-54.
13. Aftab O, Jawaid A. Rabies control in Pakistan - the WISE strategy. J Coll Physicians Surg Pak 2005; 15: 748.