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ABSTRACT

Tetanus in children treated with intrathecal tetanus immunoglobulin clinical profile, therapy, and outcome research. Immunoglobulin, medicines to control spasms and antibiotics to kill the organism are all part of the therapy of tetanus. The standard textbook recommendation is to administer TIG intramuscularly as soon as feasible. From 500IU to 6000, the suggested dosage is based on one's needs. Tetanus was diagnosed on the basis of clinical characteristics. IV fluids, or pharyngeal toilet, and nursing care were all part of the supportive treatment. The tetanus toxoid was given to all youngsters before they were released from the hospital. 192 people were hospitalized with tetanus. 166 of the 192 people treated received TIG intrathecally. 26 children received intrathecal and intramuscular TIG treatments. In 42 (58 percent) of the cases, the portal of entrance was otogenic, whereas in 23 (30 percent) of the instances, the portal of admission was damaged. 18 (65) of the post-injury cases had incubation periods of less than a week, while 10 (35) had incubation periods of more than a week. 16 cases (or 20%) were classified as light, 49 (71%) as moderate, and 8 (or 9%) as severe using the modified Patel and Jog criteria, 64 percent of the patients had a fever at the time of the beginning of illness. Research on the effectiveness of intrathecal TIG as a treatment for tetanus is essential, particularly in the case of severe forms of the disease. It was believe that children with tetanus should have access to intrathecal TIG therapy since it is efficacious, safe, and affordable



INTRODUCTION

Toxicity from Clostridium Tetani exotoxin continues to plague children in many underprivileged communities throughout the globe today [1]. In spite of the fact that a cheap and effective vaccination is readily available.

Immunoglobulin, medicines to control spasms and antibiotics to kill the organism are all part of the therapy of tetanus [2]. In addition, treatment of sequelae and diligent supportive care are necessary. The standard textbook recommendation is to administer TIG intramuscularly as soon as feasible [3]. Intramuscular TIG dosage has not been agreed upon. From 500IU to 6000, the suggested dosage is based on one's needs. TIG used intravenously is considered experimental or unsuccessful. Tests of intravenous and intrathecal Anti Tetanus Serum (ATS) against intrathecal. [4] TIG were conducted at our facility in 1982. The mortality and morbidity rates were much lower in the intrathecal TIG group. In accordance with the results of this study [5], we have been using intrathecal TIG for the therapy of tetanus in kids for the last two decades.

MATERIALS AND METHODS

All tetanus patients that were hospitalized to the paediatric intensive care unit throughout the research period were included in the analysis. Admission to the paediatrics department is limited to minors under the age of twelve according to departmental regulation. This study did not include neonatal tetanus since it is a policy not to admit newborn patients to the paediatric intensive care unit. Tetanus was diagnosed on the basis of clinical characteristics. Trismus, *Risus Sardonicus*, and/or Spasms may be present. Vaccination status, portal of entry, incubation duration, start time, clinical symptoms, therapy, complications and outcome were all noted in the case sheet.

If diazepam failed to calm the patient's spasms, chlorpromazine was administered at a dosage of 0.3–0.5 mg/kg/dose six hours a day. IV fluids, oropharyngeal toilet, and nursing care were all part of the supportive treatment. Once spasms were under control (typically within 48 to 72 hours), he began receiving nutrition via a feeding tube.

It was decided to switch from intravenous diazepam to oral diazepam at the same dosage after spasms were under control

When a child is able to eat, drink, and walk on his or her own, he or she is ready to be released from the hospital. The tetanus toxoid was given to all youngsters before they were released from the hospital. As a precaution, siblings who had not been fully inoculated were also taken to the hospital and given the vaccine before they were allowed to go. Two weeks and four weeks following discharge were set aside for follow-up appointments.

RESULTS

During the course of the study, 192 people were hospitalized with tetanus. One hundred and sixty-six of the one hundred ninety-two people treated received TIG intravenously. 26 children received intrathecal and intramuscular TIG treatments. Because of the wide range of policies regarding TIG, some facilities choose to administer the drug intramuscularly (IM) as well as topically (intrathecally). The final results include the 66 children who received intrathecal TIG as the sole therapy. There were 32 males and 34 females. They were between the ages of 1.5 and 12 years old. One-third was under age six, while the remaining two thirds ranged in age from six to twelve. There were 82% unvaccinated cases, whereas only 18% of the children were partially vaccinated. Tetanus was found in a one-year-old child who had had three doses of DPT.

In 42 (58 percent) of the cases, the portal of entrance was otogenic, whereas in 23 (30 percent) of the instances, the portal of admission was damaged. A difference was found between the entrance points used by children aged 0-5 and those aged 6-12. There were instances in the 0-5-year age range where CSOM was the portal of entrance while in the older children, the majority of cases occurred after an injury. This study underscores

the need of treating ear infections in youngsters as soon as possible.

18 (65) of the post-injury cases had incubation periods of less than a week, while 10 (35) had incubation periods of more than a week. It took an average of 4.6 days to incubate, with a maximum of 30 days and a minimum of two days. It took an average of 2.1 days for symptoms to appear, with the shortest time being one day and the longest being seven days. This bacterium was found in just 5% of the patients.16 cases (or 20%) were classified as light, 49 (71%) as moderate, and 8 (or 9%) as severe using the modified Patel and Jog criteria, 64 percent of the patients had a fever at the time of the beginning of illness. Thrombophlebitis (27; 41 percent), aspiration pneumonia (11; 17 percent), and laryngospasm were the most prevalent side effects (4; 6 percent). [8] (12 percent) of the children had autonomic system involvement shown as tachvcardia and hypertension. The intrathecal administration of TIG did not cause any problems. The longest patient stayed in the hospital for 36 days, while the shortest stayed for only three days. Only six (9%) of the children required mechanical ventilation or intubation (with a resuscitation bag). There were no tracheostomies among the patients.

The tetanus fatality rate in the post-neonatal period at our institution was 12 percent when intramuscular and intrathecal TIG were included in the research [11]. Only one of the six children who died had a milder form of the condition. Uncontrolled spasms produced laryngospasm in four children, and aspiration in another two also resulted in death in these tragedies. Tetanus could save just one of the seven affected children.

DISCUSSION

Neither the method nor the doses of tetanus immunoglobulin have been agreed upon yet. TIG delivery through intrathecal route has been reported to be effective in treating tetanus despite typical textbooks' recommendations to the contrary. [6,7] The suggested intramuscular TIG dosage ranges from 500 IU to 6000 IU per treatment. [8,9] High costs and the need of several injections because to the enormous amount supplied are two drawbacks of intramuscular TIG.

Apart from effectiveness, intrathecal TIG offers an economic advantage and safety. Intrathecal TIG has been used to treat tetanus at our facility for the last two decades. Although our ICU lacks advanced equipment, our mortality and morbidity rates are comparable to those of other facilities in India and throughout the world. This study's mortality and morbidity rates (mortality of 7.1%; average hospital stay of 10 days; and only 3 of 41 patients requiring mechanical respiration) were replicated in another facility with comparable patient features, treatment protocols, and resources (including intrathecal TIG). Many well-equipped Indian hospitals have used intramuscular TIG with less-than-optimal results in terms of mortality and morbidity (including the requirement for assisted breathing) and length of hospital stay [10, 11]. TIG was administered in a very different way at this institution than it is at ours. Cl. tetani's toxin attaches at the neuromuscular junction and is subsequently delivered retrogradely to the alpha motor neuron via axonal transport. Neurotransmitter GABA is prevented from being released from nearby inhibitory inter neurons after exiting the spinal cord motor neuron [4]. TIG cannot be used to halt the toxin's axonal ascent once it has started. TIG may have a role at this level.

Early tracheostomy, intentional paralysis, and artificial breathing minimize tetanus mortality and morbidity. [7] We discovered that individuals with mild and severe tetanus responded well to intrathecally delivered TIG, avoiding the need for tracheostomies or mechanical respiration. Treatments for tetanus in children may be necessary. Since laryngeal spasm killed five of the six patients we studied, if we'd been able to provide timely ventilatory aid, the fatality rate would've been lower. If the critical care unit nurses are careful, intrathecal TIG treatment for mild and severe tetanus may not be affected by the absence of modern equipment (ICU).

CONCLUSION

No one has yet concluded on the effectiveness of intrathecal TIG treatment. Research on the effectiveness of intrathecal TIG as a treatment for tetanus is essential, particularly in the case of severe forms of the disease. We believe that children with tetanus should have access to intrathecal TIG therapy since it is efficacious, safe, and affordable.

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