

# A New Method of Grading Tetanus Neonatorum

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## Abstract

Neonatal Tetanus is one of the major killers in the early period of life.

The disease has got a definite course and the early institution of therapy has a substantial role in altering this. The authors have devised a new method of grading the disease in order to assess the severity. Accordingly the disease has been given four grades.

The grading has proved to have diagnostic and prognostic implications ,specially for purposes of research (JPMA 32:41, 1982).

## Introduction

Neonatal Tetanus is a major killer in the developing countries. According to a rough estimate it is responsible for 38 .4% of neonatal deaths in Pakistan. The field survey conducted by E.P.I. (Expanded Poly Immunization Programme) in collaboration with WHO showed that the mortality of the disease was 100%. In order to gauge the magnitude of the problem a prospective study is under way in the Department of Child Health Khyber Medical College) Peshawar.

Since the disease has a definite course, the early institution of therapy has substantial prognostic value. The severity of the disease has to be determined in order to establish the value of a treatment protocol, For this purpose a system of grading has been devised by the authors which seems to have diagnostic and prognostic implications.

## Material and Methods

All cases of Neonatal Tetanus admitted to the unit were included in this study. The diagnosis in each case was confirmed by the consultant incharge of the unit. The essentials of diagnosis were considered to be either of the following:-

1. Trismus/Regional rigidity.
2. Reflex Spasms/Residual rigidity in between the spasms.
3. Growth of Cl. Tetani with I or 2 of the above.

After establishing the diagnosis the babies were isolated in a dark room and were put under observation in order to grade the intensity of the disease. The grading was done according to the schedule shown in Table 1.

### Grading of Tetanus

<i>Manifestation</i>	<i>Score</i>			
	0	1	2	3
Time between trismus and onset of spasms	No spasms	More than 48 hours	24 to 48	Less than 24 hours.
Umbilicus	Healthy	Inflamed	With pus discharging	Covered with infective maturing and with pus discharging.
Reflex spasms.	Absent	To tactile stimuli	To visual stimuli	To auditory stimuli.
Duration of spasms	No spasms	30 secs.	60 secs.	More than one minute.
Residual rigidity	Absent.	Arms or legs.	Arms and legs.	Generalized, including abdomen.
Grade I	.— 4 Points		Grade III	.— 9-12 Points.
Grade II	.— 5-8 Points.		Grade IV	.— 13-15 Points.

### Results

In all 105 cases were admitted from 15th December 1979 to 15th December 1980. They were graded as in Table II.

## Table II

### Distribution of Cases in Various Grades.

Grade I	...	...	...	2 cases
Grade II	...	...	...	3 cases
Grade III	...	...	...	39 cases
Grade IV	...	...	...	61 cases

They were all treated conservatively and the cure rates in different grades was as shown in Table III.

**Table III**  
**Cure Rates in Various Grades**

Grade I	...	...	...	100%
Grade II	...	...	...	100%
Grade III	...	...	...	78.8%
Grade IV	...	...	...	34.6%

### Discussion

Neonatal Tetanus is one of the most fatal disease of the Central Nervous System in the neonatal period. The local lesion is always very mild yet the exotoxin produced is lethal enough to cause death. After peripheral absorption the toxin reaches the Central Nervous System by passing along the motor trunks and spreads up the spaces between nerve fibres (Drewett 1972; Gillespie). It acts by interfering with the inhibitory mechanisms at the motor neurones. This accounts for the generalized increase in tone in local tetanus. The condition usually starts with stiffness and spasms in the area of infection but it usually goes unnoticed. This is followed by trismus due to masseteric spasm, dysphagia, spasms of the facial muscles and finally generalized spasms in which there may be opisthotonus. The clinical grading devised by us simply depends upon the stage of the disease when it is first presented.

Such a method of grading has obvious utility as regards the prognosis of the disease. In our series the cure rate in grade I and grade II was 100% with conservative measures as compared to 78.8% in grade III and 34.6% in grade IV.

The grading is also inevitable in selecting cases for research purposes. As the prognosis differs considerably and if the cases are taken at random, the inferences are likely to be biased.

The system though may be of help in diagnosis, has definite limitations. This is due to the fact that the early symptoms are non specific and are present in other Neonatal disorders. So we recommend that the case should be graded after either of essentials of diagnosis have been satisfied.

### References

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2. Gillespie, W.A., Linton, K.B., Miller, A. and Slade, N. (1960) The diagnosis, epidemiology and control of Urinary infection in Urology and gynaecology. *J. Clin. Pathol.*,13:187.