MATERIAL AND METHODS
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The present study was conducted in the department of Surgery, M.L.B. Medical College, Hospital, Jhansi (U.P.). This study included retrospective and prospective analysis of tetanus cases admitted in tetanus ward during Sept., 1990 to Jan., 1992.

The objects of this study were to study the effect of propanolol in management of tetanus in regards to change in mortality and morbidity.

The cases of tetanus were categorised into three groups:

1. Neonates - cases from 1 day to 1 month of age.
2. Children group included the cases from 1 month to 12 years of age.
3. Adult group - included all the cases above the 12 years of age.

Every patient was subjected to a thorough history and clinical examination as listed below:

1. HISTORY

In history specific points were recorded like mode of injury, history of umbilical cord sepsis, ear discharge, child birth, period of onset, incubation period, previous prophylaxis against tetanus and treatment taken before hospitalization.
2. **PHYSICAL EXAMINATION**

This constituted of general examination and special examination.

Examination included the following points:

- Pulse/min.
- Temperature
- Blood pressure
- Respiratory rate/min.
- Respiratory distress
- Hydration

Special examination included the following points:

- Risus sardonicus
- Neck rigidity
- Opisthotonous
- Lock jaw
- Dysphagia
- Reflex spasm

- Cyanosis
- Oedema
- Lymphadenopathy
- Constipation
- Retention of urine
- Convulsions
- Position of limb
- Eyes
- Abdominal rigidity
- Local examination
  in cases of septic focus or wound.

The pulse/min, temperature and B.P. were recorded 12 hourly in both the control and study groups.

**INVESTIGATIONS**

- Routine blood examination
- C.S.F. Examination
- Urine culture examination.
- Culture for umbilical sepsis.
TREATMENT

Treatment was divided into two groups:

1. General Treatment
   a. General nursing care.
   b. Maintaining of airway.
   c. Intravenous fluid/Ryle's tube/oral foods to fulfill the natural requirement depending upon patient's condition.
   d. Care of local wound.
   e. Sedation was maintained using diazepam, promethazine, hydrochloride and chlorpromazine in appropriate doses.
   f. Muscle relaxant methacarbamol was used to reduced spasm.
   g. Antibiotics were given according to need, like crystalline penicillin, ampicillin, gentamycin, chloromycetin and septran.

2. Local Treatment
   In cases of neonates it included the cleaning and dressing of umbilical canal. In case of ear discharge it include thorough cleaning of ear and antibiotics drops. In cases of wound cleaning debriement and dressing.

3. Specific Treatment
   Intrathecally human antitetanus globulins.
By Nasogastric oral route propanolol in calculated doses.

According to treatment given the total patients were kept in 2 groups.

- In one group, the propanolol was not given and B.P., pulse, temperature recorded 12 hourly, and stay in hospital and mortality noted.

- In second group, the propanolol was given in oral/ Ryle's tube 40 mg in TID doses in severe cases, 40 mg/3ID in moderate cases in adult and 2 mg/kg in children in moderate cases and B.P., pulse, temperature, were recorded 12 hourly. The hospital stay and mortality were also recorded.

IMMUNIZATION

According to WHO fully scheduled immunization.

Ist dose at the time of admission.
IIInd dose at 6 weeks of the 1st dose.
IIIrd dose at 6 months from the IIInd dose.

A booster dose was administered 5 to 10 years after the primary course of immunization.