

A randomised, open, comparison of penicillin and metronidazole for the treatment of tetanus

Submission date 13/09/2005	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
Registration date 14/10/2005	Overall study status Completed	<input type="checkbox"/> Protocol
Last Edited 25/10/2022	Condition category Infections and Infestations	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
077166

Study information

Scientific Title
A randomised, open, comparison of penicillin and metronidazole for the treatment of tetanus

Acronym

TS Study

Study objectives

Penicillin given parenterally has been the standard antibiotic treatment for tetanus for more than 50 years. However there are several theoretical disadvantages to its use. Because many patients with tetanus cannot take medicines orally, penicillin must be administered by injection, either IntraMuscular (IM) or IntraVenous (IV). Any noxious stimulus, such as an injection, has the potential to induce potentially lethal spasms.

Penicillin is known to block post-synaptic Gamma-AminoButyric Acid (GABA) and thus is pro-convulsant. It could lower the threshold for convulsions, which may be seen in severe tetanus. Since GABA transmission occurs in skeletal muscles as well as the central nervous system, penicillin could in theory worsen spasms as well. Metronidazole may be given rectally by suppository, thus obviating the need for painful injections. Bioavailability by this route is reasonably high. Metronidazole is known to be effective against Clostridia species. In a small study from Indonesia metronidazole was at least as effective as penicillin in patients with tetanus of moderate severity, although many patient details were not given in the published report. This study aimed to compare IV penicillin and metronidazole suppositories for the treatment of tetanus.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Not provided at time of registration

Study design

Randomised controlled trial

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Tetanus

Interventions

Patients entered into the study were randomised to receive:

1. Benzylpenicillin 2 million units (child 25,000 units/kg) IV six-hourly for seven days
2. Metronidazole 1 g (child):
 - a. 125 mg age four weeks to less than 12 months
 - b. 250 mg age one to four years
 - c. 500 mg age five to 12 yearsRectally (PR) eight-hourly for three days then 12-hourly for four days.

Once the patient could reliably tolerate oral medicines the appropriate dose of penicillin G or metronidazole was given by mouth instead of IV or PR, respectively. Patients who were known to be allergic to penicillin received erythromycin instead.

Intervention Type

Drug

Phase

Not Specified

Drug/device/biological/vaccine name(s)

Penicillin and metronidazole

Primary outcome(s)

The primary endpoint was mortality.

Key secondary outcome(s)

The secondary endpoints were recovery times and complication rates.

Completion date

01/01/1997

Eligibility**Key inclusion criteria**

1. Clinical diagnosis of tetanus
2. Aged more than one month
3. Informed consent from patient or attendant relative (if comatose or aged less than 16 years)

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Not Specified

Sex

All

Key exclusion criteria

Lack of informed consent or age less than one month

Date of first enrolment

01/04/1993

Date of final enrolment

01/01/1997

Locations**Countries of recruitment**

Bangladesh

Thailand

Study participating centre

c/o Dr Nick Day

Bangkok

Thailand

10400

Sponsor information

Organisation

University of Oxford (UK)

ROR

<https://ror.org/052gg0110>

Funder(s)

Funder type

Charity

Funder Name

The Wellcome Trust (UK) (grant ref: 077166)

Results and Publications

Individual participant data (IPD) sharing plan

Not provided at time of registration

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Abstract results	conference abstract	01/03/2002	23/10/2019	No	No