TETANUS

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Learning Objectives

- Enumerate the causes
- Types of tetanus
- Recognize the clinical features
- Principals of treatment

Clostridium tetani

- Gram-positive, anaerobic rod with terminal spore, (drumstick appearance)
- Spores are very resistant to heat and usual antiseptics
- They are widely distributed in soil and in the intestines / feces of horses, cattle, dogs, chickens
- Produces exotoxins (tetanolysin & tetanospasmin)

Clostridium tetani Gram Stain

Incubation period – 8 days (3-21)

COMMUNICABILITY

- Tetanus is not contagious from person to person
- Only vaccine-preventable disease that is infectious but not contagious

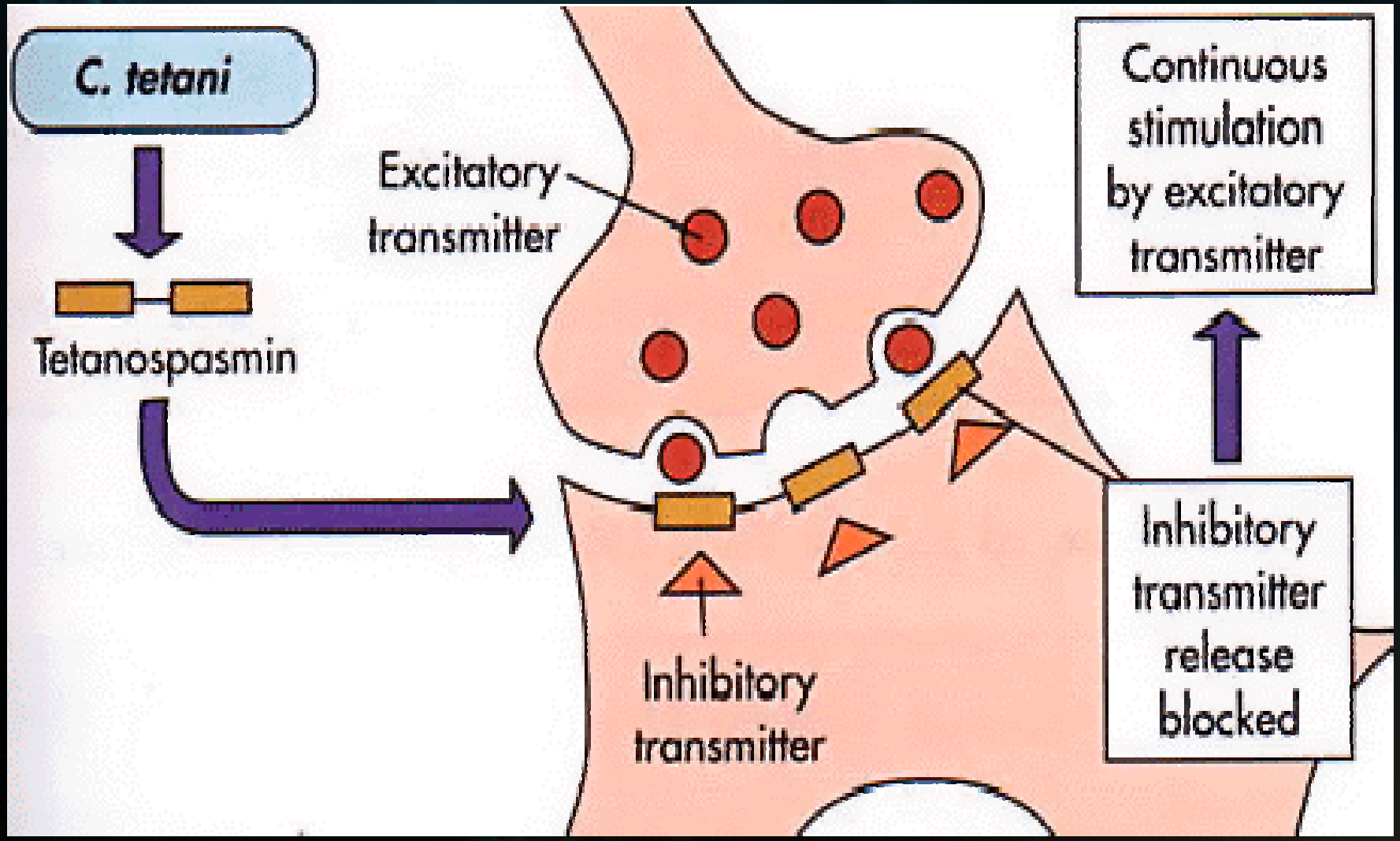
Mode Of Transmission

- Puncture wounds, lacerations, abrasions
- Burn victims, im injections, tattoo, frostbite
- Dental infections, penetrating eye injuries
- Diabetes, chronic wounds, iv drug abuse

Neonatal tetanus

- Unvaccinated mother, home delivery
- Unhygienic cutting of umbilical cord
- Application of animal dung, mud to umbilical stump

Tissue pathogenesis



Type of Tetanus

- Local tetanus
- Cephalic tetanus
- Generalized tetanus
- Maternal tetanus
- Tetanus Neonatorum

Local tetanus

- uncommon form, generally milder
- painful spasms of the group of muscles in close proximity to the site of injury
- may precede onset of generalized tetanus
- may persist for several weeks but usually self-limiting

Cephalic tetanus

- rare form
- Chr otitis media or head trauma
- variable cranial nerve palsies (VII MC)
- Ophthalmoplegic tetanus (III palsy + ptosis)
- untreated progress to generalized tetanus

CEPHALIC TETANUS

Lt side Infranuclear facial palsy

Maternal tetanus

- occurring during pregnancy or within 6 weeks after any type of pregnancy termination
- septic procedures during delivery
- septic maneuvers during induced abortion
- inoculation through a non genital portal

Neonatal tetanus

- presents with an inability to suck 3-10 days after birth
- presenting symptoms - irritability, excessive crying, grimaces, rigidity, opisthotonus

Neonatal tetanus

Generalized tetanus

- most common (80%)
- usually presents with a descending pattern
- early symptom - trismus (lock jaw) – spasms masseter
- risus sardonicus – contraction of frontalis / muscles at angle of mouth

Lock jaw

risus sardonicus

Spasms

- Reflex spasms develop in most patients
- triggered by minimal external stimuli such as noise, light, or touch
- last seconds to minutes; become more intense; increase in frequency with disease progression
- can cause apnea, asphyxia, fractures, rhabdomyolysis
- unfortunately, affected individual is conscious throughout

Opisthonotus

Tetanic spasm

Tetanic seizures

- may occur and portend a poor prognosis
- frequency and severity related to severity of disease
- resemble epileptic seizures with the presence of a sudden burst of tonic contractions
- patient does not lose consciousness and usually experiences severe pain
- frequently occur in the muscle groups causing opisthotonos, flexion and abduction of the arms, clenching of the fists against the thorax, extension of the lower extremities

Autonomic dysfunction

- Tetanospasmin has disinhibitory effect on ANS
- Manifests as sweating, fluctuating blood pressure, episodic tachydysrhythmia
- Death – cardiac, respiratory, secondary infection
- Recovery is slow, usually over 2-4 months, no long-term side effects
- Clinical tetanus does not produce a state of immunity

Phillips, Dakar, Udwadia Score

Rating scale for severity and prognosis of tetanus

- Incubation period < 7 days
- Period of onset < 48 hours
- Acquired from burns, surgical wounds, compound fractures, septic abortion
- Narcotic addiction
- Generalized tetanus
- Temperature > 104°F
- Tachycardia > 120 beats /min

Diagnosis of Tetanus

- Diagnosis is clinically based on presence of trismus, dysphagia, generalized muscular rigidity, and/or spasm
- An assay for antitoxin levels > 0.01 IU/Ml in serum is generally considered protective
- CSF – WNL
- The spatula test (sensitivity - 94% ; specificity - 100%)

Objectives of Management

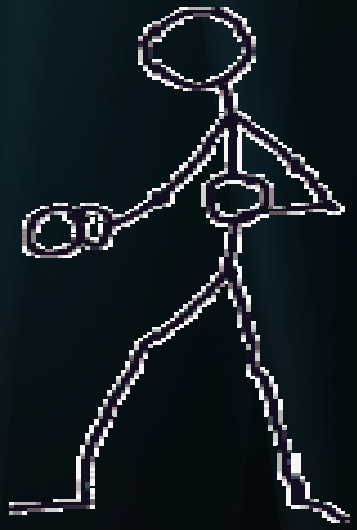
Objectives of Management

- treatment of muscle spasm
- prevention of respiratory and metabolic complications
- neutralization of circulating toxin
- elimination of the source

Treatment

- ICU (dark and quiet), Intubation
- TIG
- Debridement of wounds
- Sedative-hypnotic agents (BZD), GA
- Centrally acting muscle relaxants (*Baclofen,* Dantrolene)
- Antibiotics (Penicillin G, Metronidazole)

Thank you



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