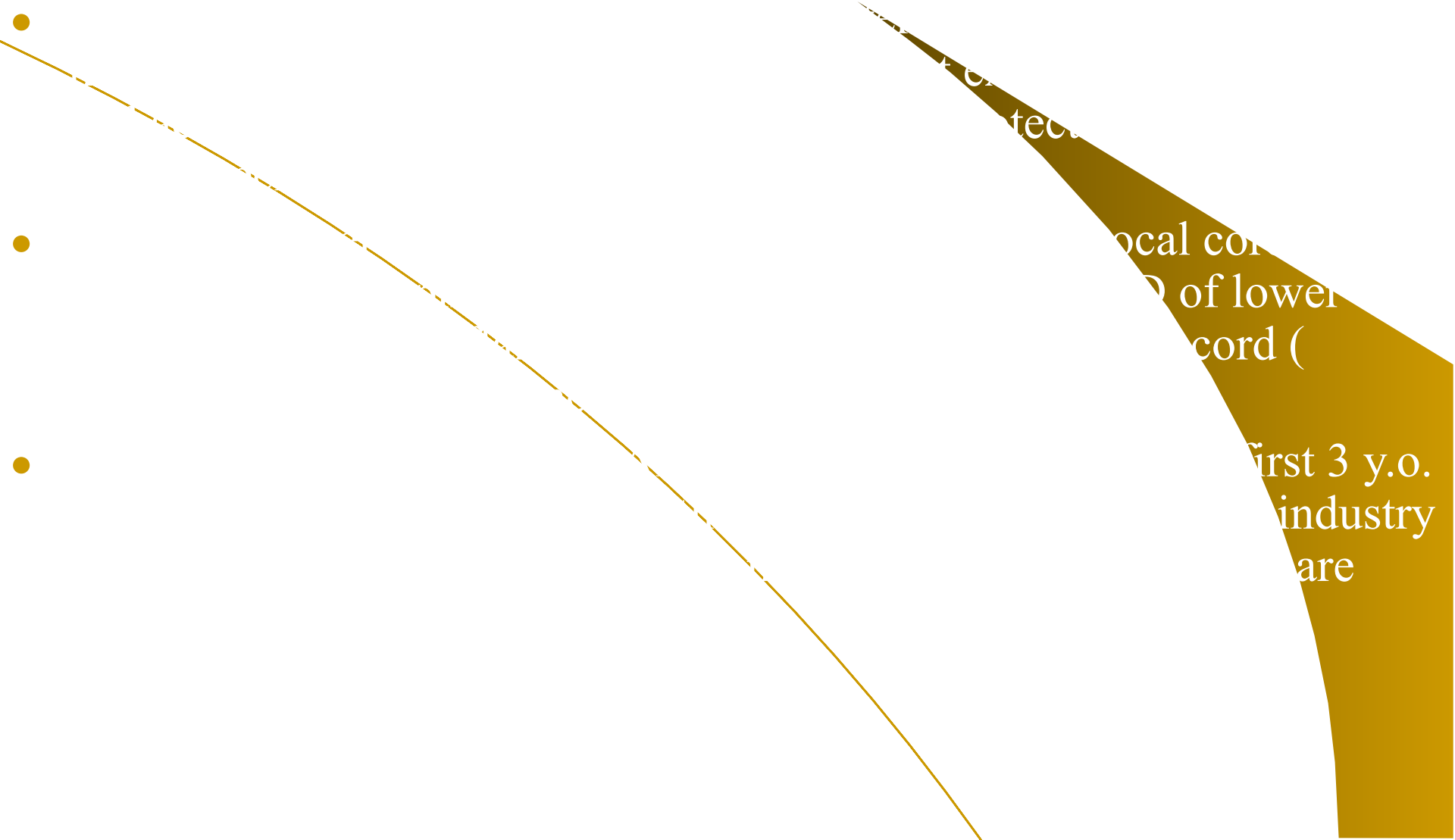
Acute respiratory diseases in children

Plan of the lecture

1.
2. D
3.
4.
5.
6.
7.

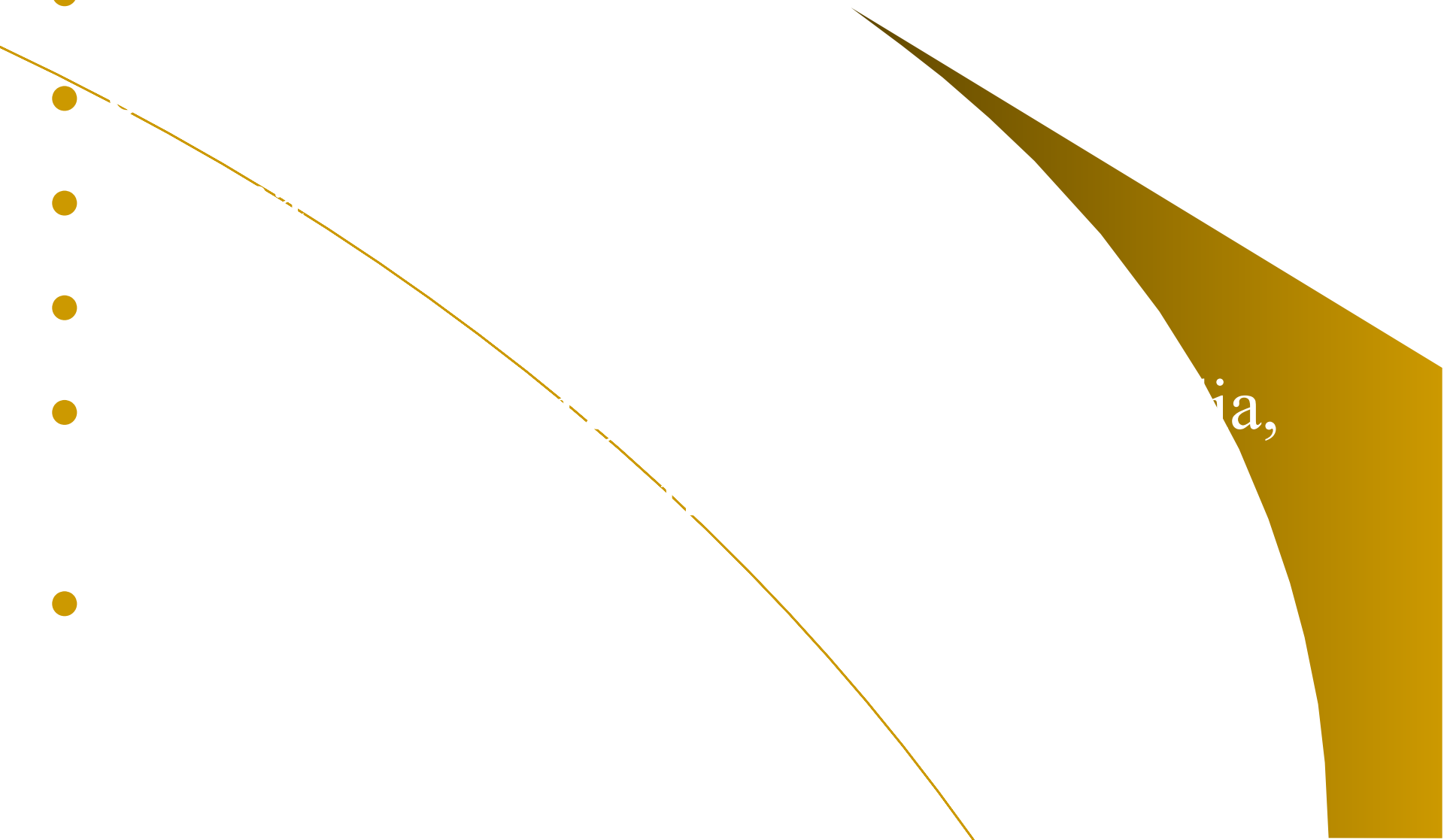
ARD is etiologically heterogeneous group of infectious diseases with similar epidemiologic and clinic characteristics.

-
-
-



Etiology of ARD

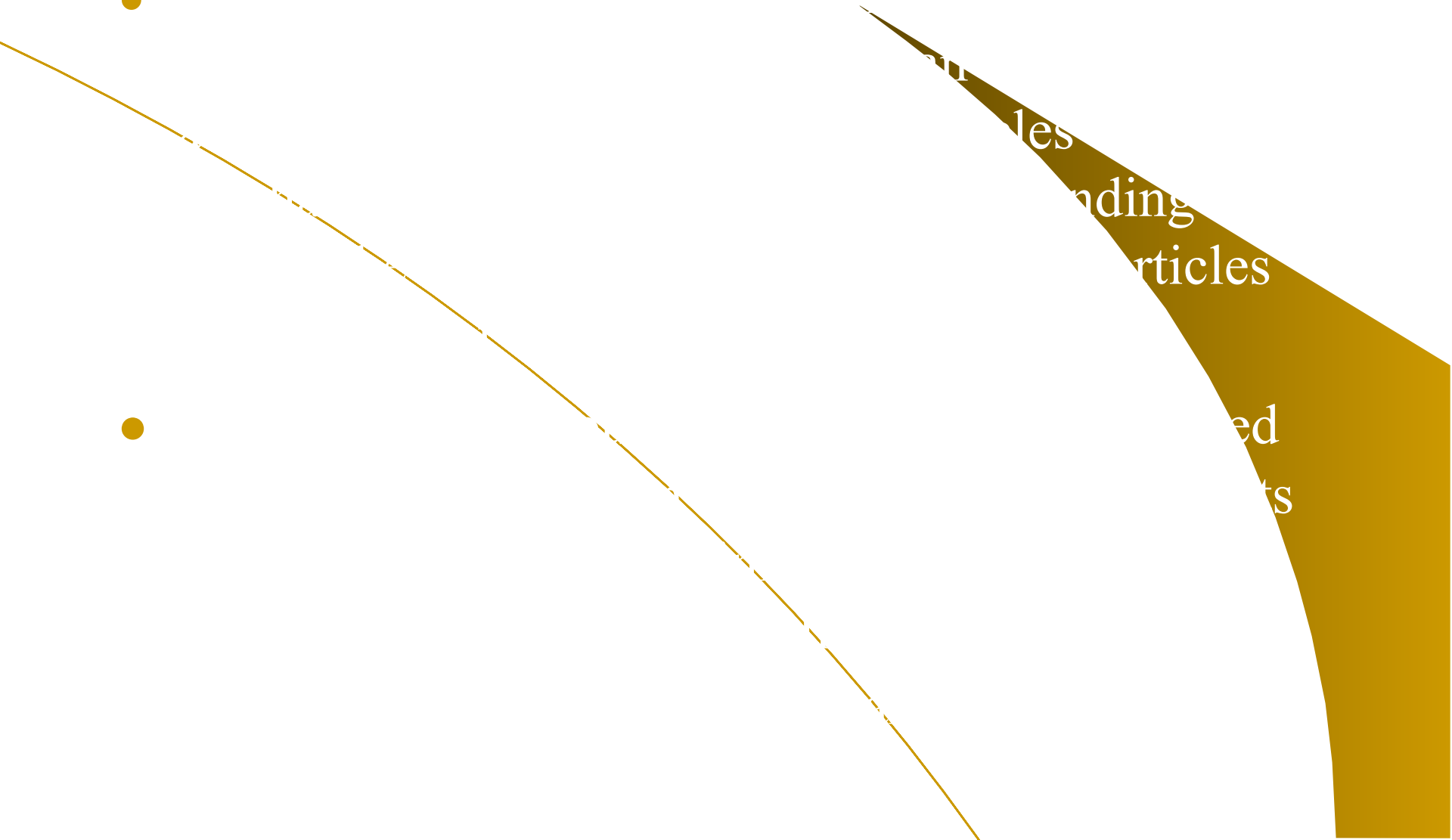
-
-
-
-
-
-



As a rule ARD course isn't severe and rarely produce complications, but sometimes it can initialize another pathologies.

Among respiratory viral diseases the most severe course is in influenza or adenoviral infections, RS viruses or parainfluenza type 3. It's quite commonly accompanied by bacterial infection that worsen condition and prognosis for life.

Transmission mechanism in ARD

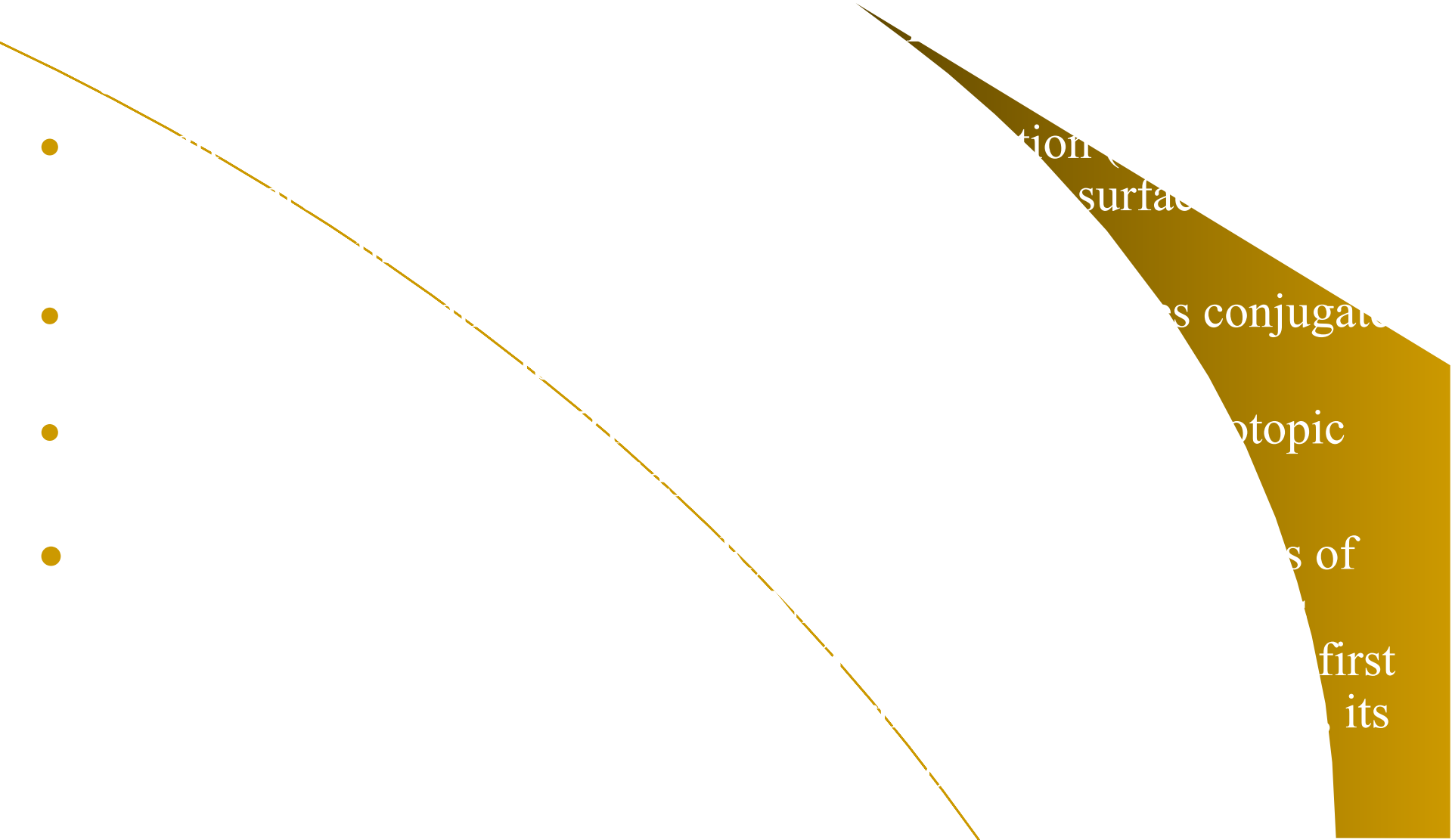


Susceptibility for ARD infection is universal, but is more prominent in age of 6 mo to 3 y.o. It can be explained by absence of previous contact with these microorganisms and absence of active immunity. Growing children get this immunity and lower their morbidity.

Postinfective specific immunity has its own peculiarities depending on etiology of disease. Influenza or vaccination develop lifelong immunity but viral drift (i.e. not significant antigen changes) raise susceptibility of population and seasonal morbidity sometimes even epidemic. Influenza virus A except drift capable for spontaneous mutations and recombination of RNA fragments (so called antigen shift). Due to this pandemia can appear periodically (once per 10-40 years), when all world population can be affected by these pathogenes.

The total viral serotypes count is about 180 and they cause respiratory tract affection in 95 %

-
-
-
-
-



All viruses produce very similar clinical picture – catarhhal events, running nose, cough and hyperthermia. But some peculiarities exist in various viruses diseases. For instance: **adenoviruses** can cause tonsillitis (frequently with thin coating on tonsils), produce lymphadenopathy, prolonged course of intoxication and fever. **Enteroviruses** can produce herpangina. **Parainfluenza** viruses are the most frequent reason of laryngitis and stridor in children. **RS** viruses produce obstructive bronchitis or bronchiolitis in infants.

Except mechanical defending mechanism, respiratory tract is protected by immune system.

Neonates after birth are defended by adequate immune response. Besides this they are protected by mother's Ig for 3 mo. But infants has peculiarities of immune system.

Polynuclear neutrophils are able to perform phagocytosis but their mobilization is 2-3 times lower than in adults.

Cytotoxic activity of NK is significantly lower than in adults.

Production of IgM is the same as in adults but secretion of IgA and IgG and reach the proper level is only at 5-7 years old.

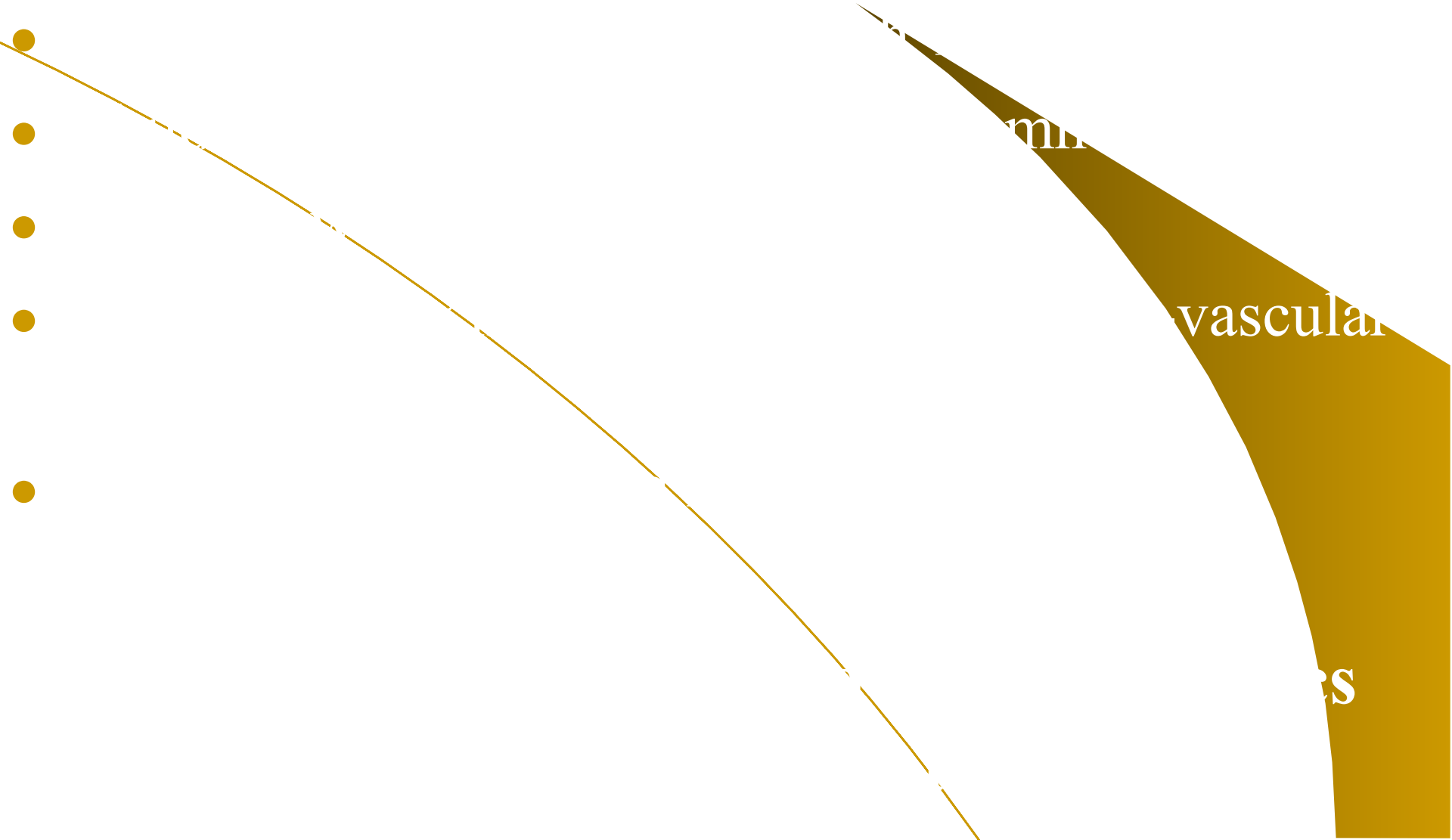
Interferon secretion is 10 times less than in adults. Deficiency of IL-2 predispose to Th-2 type of answer and efficient Th-1 way of defending as Th-2 induce secretion of IgE and predispose to atopy.

Fever is the protective- accommodate reaction of organism caused by pathologic agents and characterized by remodeling of thermoregulation process with elevation of body T and stimulation of natural organism reactivity

Types of fever

Indications for antipyretic medications

Risk group for complications due to fever



Hyperthermic syndrome is pathologic type of fever when fast raising of body T is accompanied with microvasculature metabolic impairment and progressive dysfunction of essential organs

Main signs of hyperthermia condition:

- n
- hou
- tion
-
-
-

Medication choice in fever are

-
-
- on
- nd 2)
- e (
-
-

Paracetamol is the most safe antipyretic drug. It's dosage is ***10-15 mg/kg tid or 4 times /day***. Daily dosage mustn't exceed 60mg/kg. Sirup forms of paracetamol start its effect after 30-60 min after admission; In suppositories – effect is realized 2-3 hours later. They are convenient for night time.

Ibuprofen dosage is ***5-10 mg/kg*** tid.

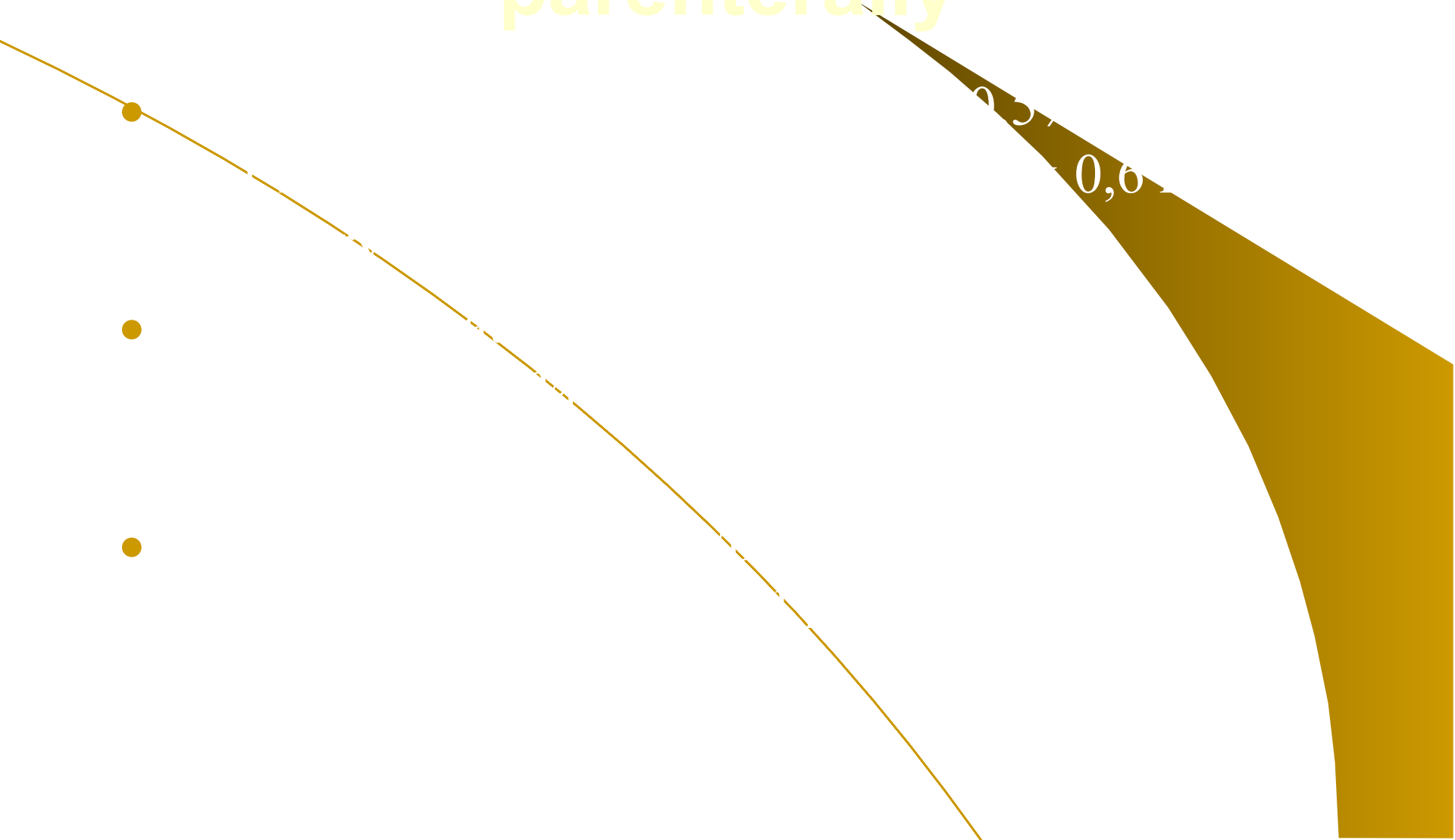
Lytic mixture is prescribed only for hyperthermia condition and “pale” fever IM

-
- ml/kg
- ,2

If child has generalized convulsions it's necessary

-
-
-
-
-
-

To relief convulsions prescribe parenterally



Toxic syndrome –(acute infectious toxicosis, neurotoxicosis, toxic encephalopathy) is typical for initial period and has several phases.

Transforming of one phase into another can be seen if child don't get proper treatment.

Initial phase Child is apathic, refuse feeding, don't smile, sometimes is irritated, pale with bluish discoloration under the eyes. His sleeping is disturbed, regurgitation or even vomiting can appear. Tachycardia isn't correlated with T, muscle dystonia, contractility of muscle groups, not stable

nystagmus can be find.

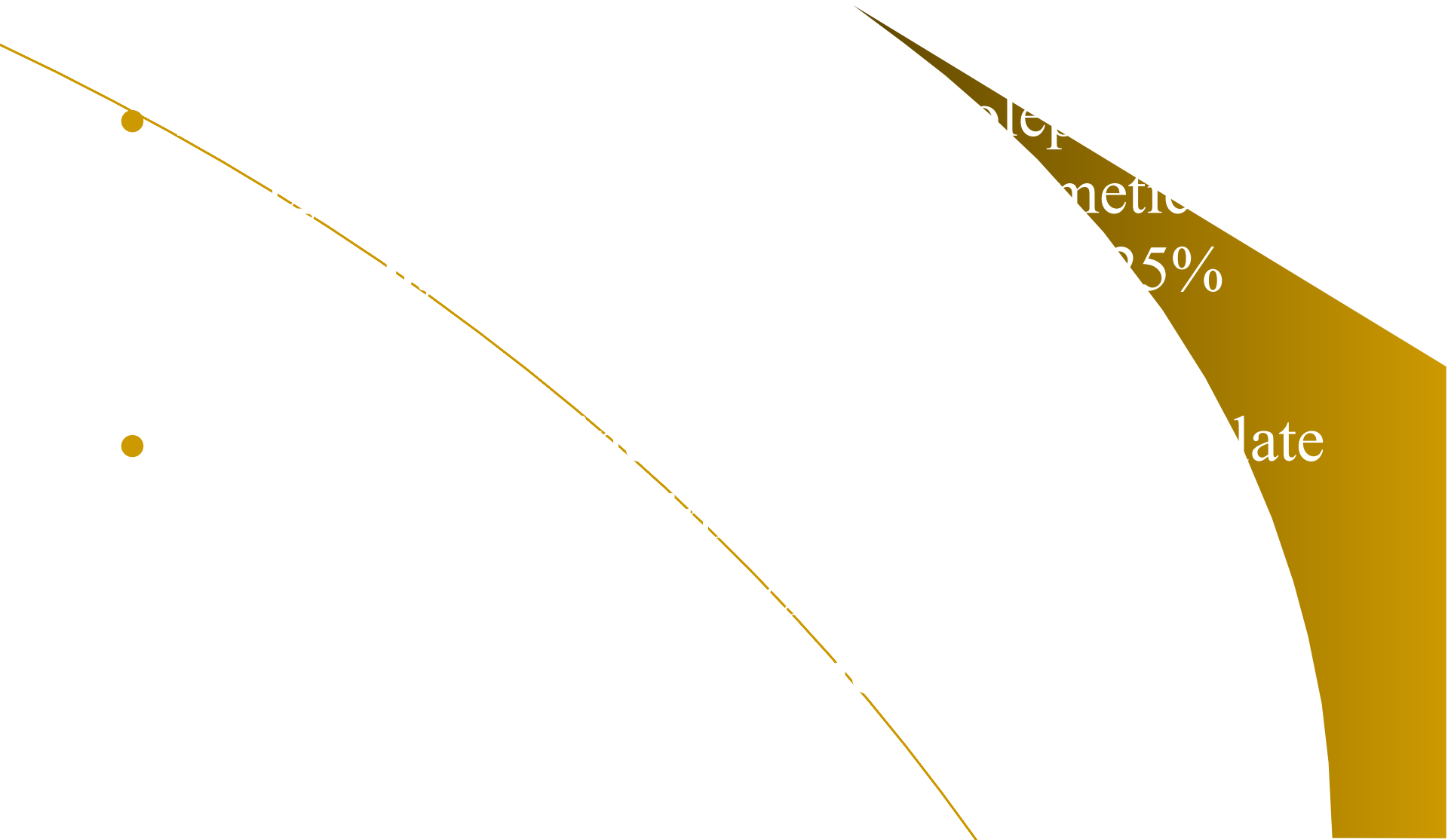
Irritative phase Nocturnal agitation, painful crying, fast raising of T, tachypnoe and tachycardia, elevation of BP are common signs of second stage. Neurologic symptoms appear like tremor and seizures, meningism symptoms.

Hypotonic phase Irritation subsides by adynamia sopor, decreasing of BP muffled heart sound, depressed respiration, tonic convulsions with apnoe.

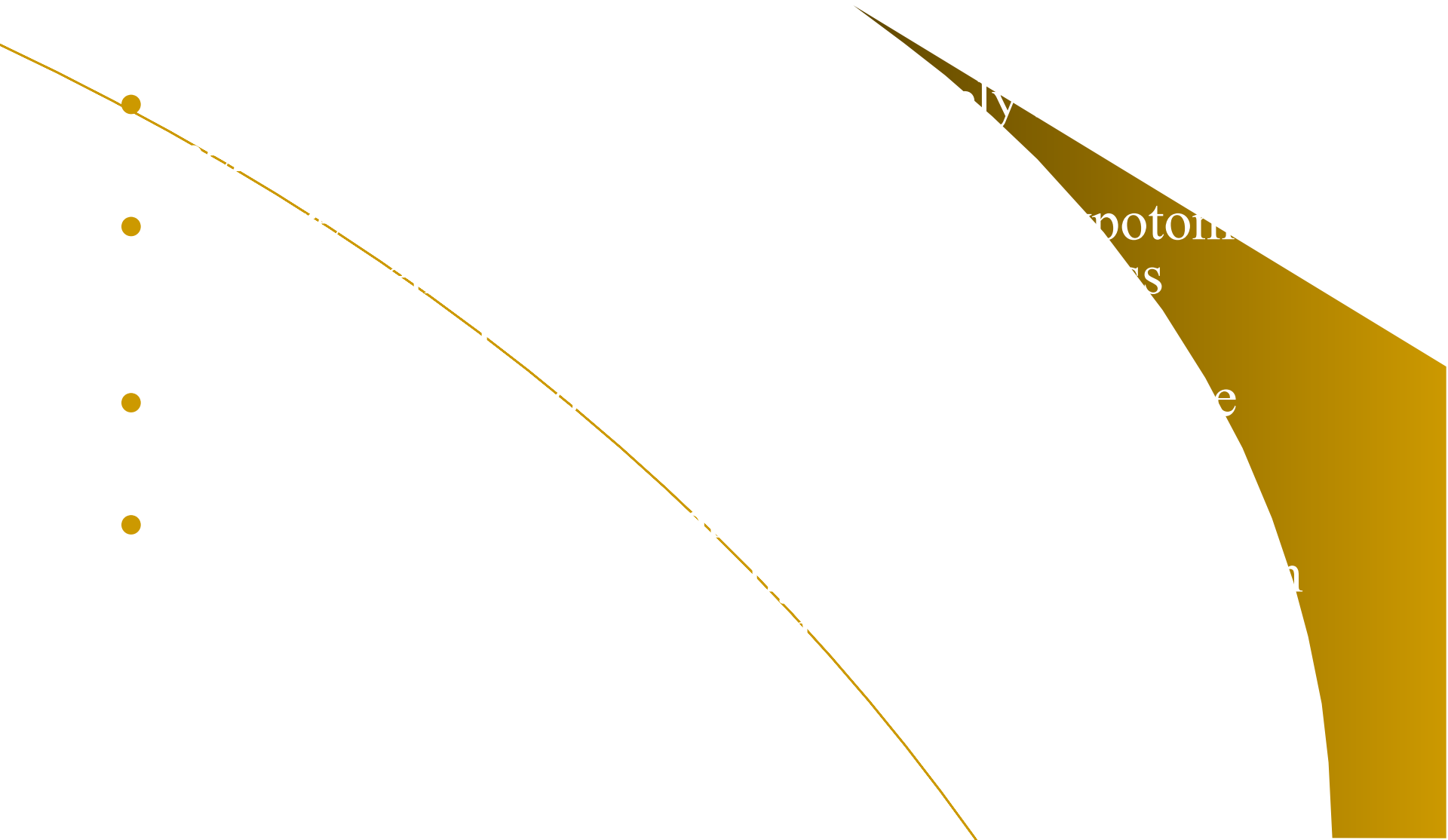
Deep coma phase Child is slightly react or don't to pain, T decreased. Respiration become aperiodic, hasping type respiration, bradycardia. Skin becomes grayish with marmoreal discoloration due to vascular picture, hemorrhagic rash can appear, DIC syndrome can produce bleeding. Child can die without proper emergency aid.

Typical for toxicosis changes (edema, stasis, hemorrhages, acute dystrophy and alteration) will more visible in systems and organs impaired beforehand. Dominating syndrome like encephalopathic, cardiac hemorrhagic, kidney failure, respiratory distress syndrome will be developed in locus minoris. Such conditions as lost of conscience, prolonged convulsions, signs of brain hypoxia, cardiac failure, hemorrhagic syndrome, kidney failure need emergency treatment.

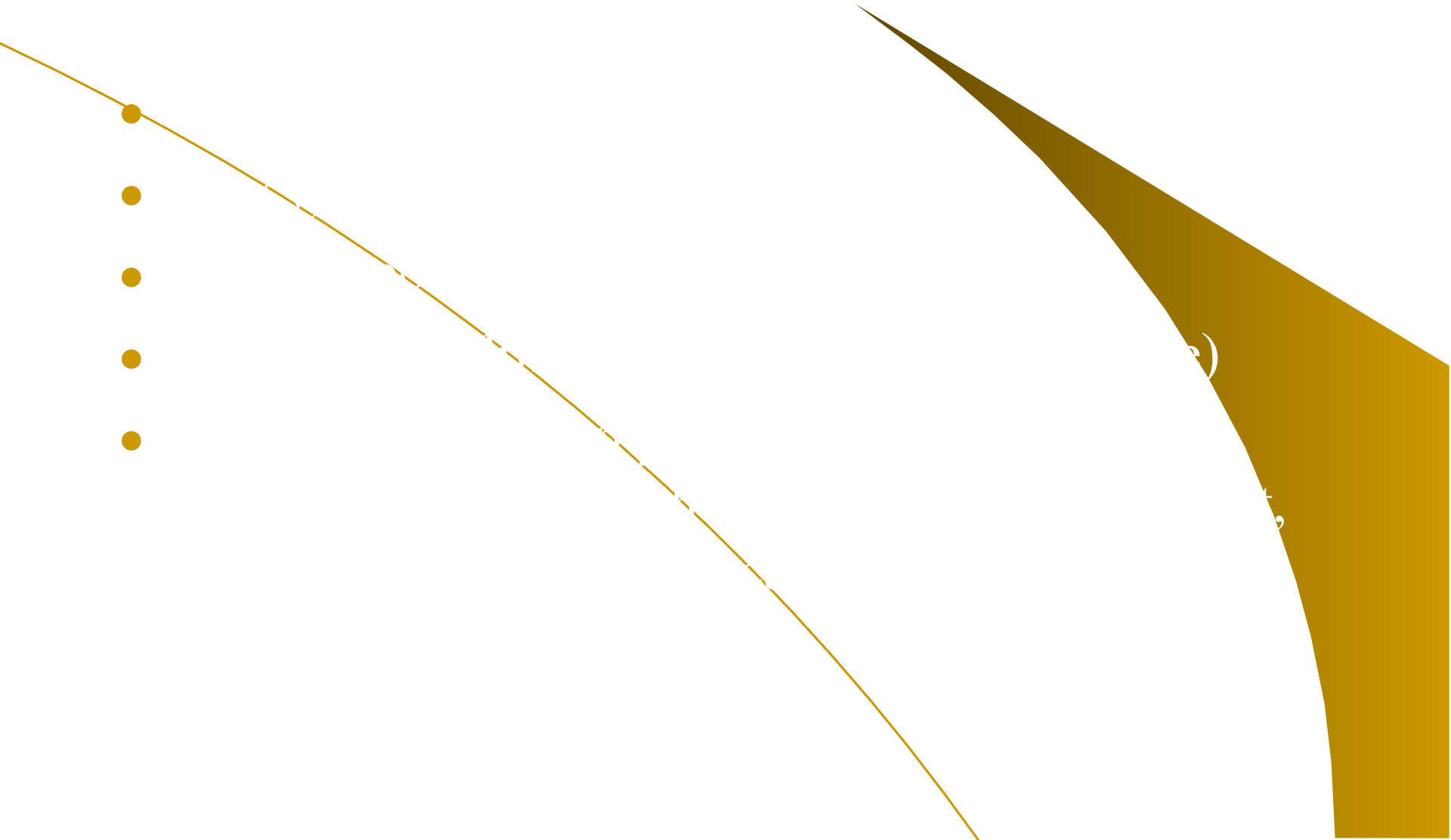
Toxicosis treatment



Neuro-vegetative protection is performed taking into account such rules:

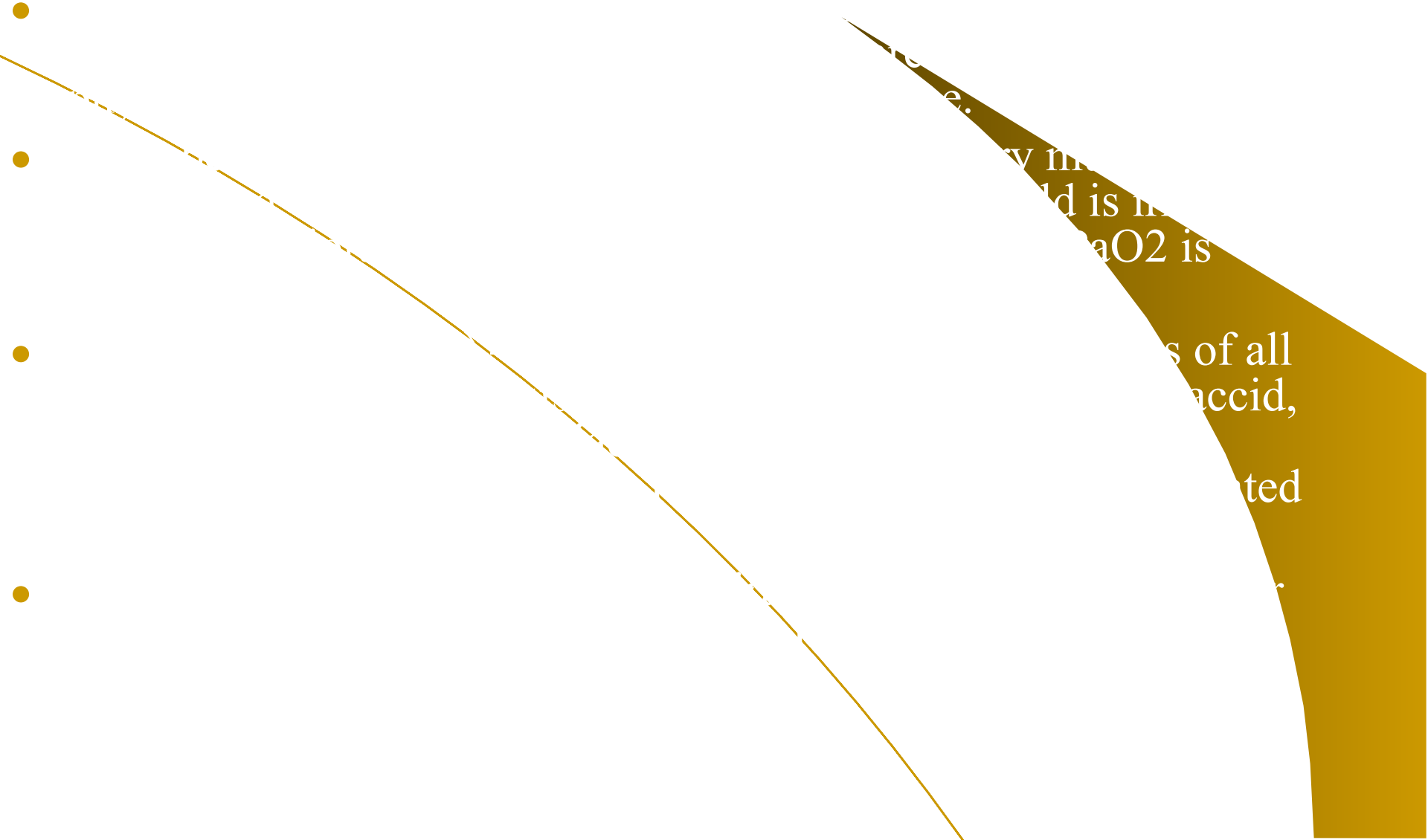


Typical symptoms of stridor



Stridor degrees

-
-
-
-



Treatment of stridor (only in hospital!)

-
-
-

Indications for invasive treatment

-
-
-

of

nt

Clinical peculiarities and signs of ARD

-
-

Rhinitis treatment is symptomatic:

-
-

Pharyngitis - mucous layer inflammation of pharynx. It is frequently combined with rhinitis and is called nasopharyngitis – the most frequent syndrome in ARD.

Symptoms: sudden tickling feeling in the throat dryness, thore throat while swallowing or taking meals. Common condition is usually normal or slightly impaired, body T can be elevated or not. Prognosis is good. Recovery usually in 5-7 days.

Pharyngitis treatment

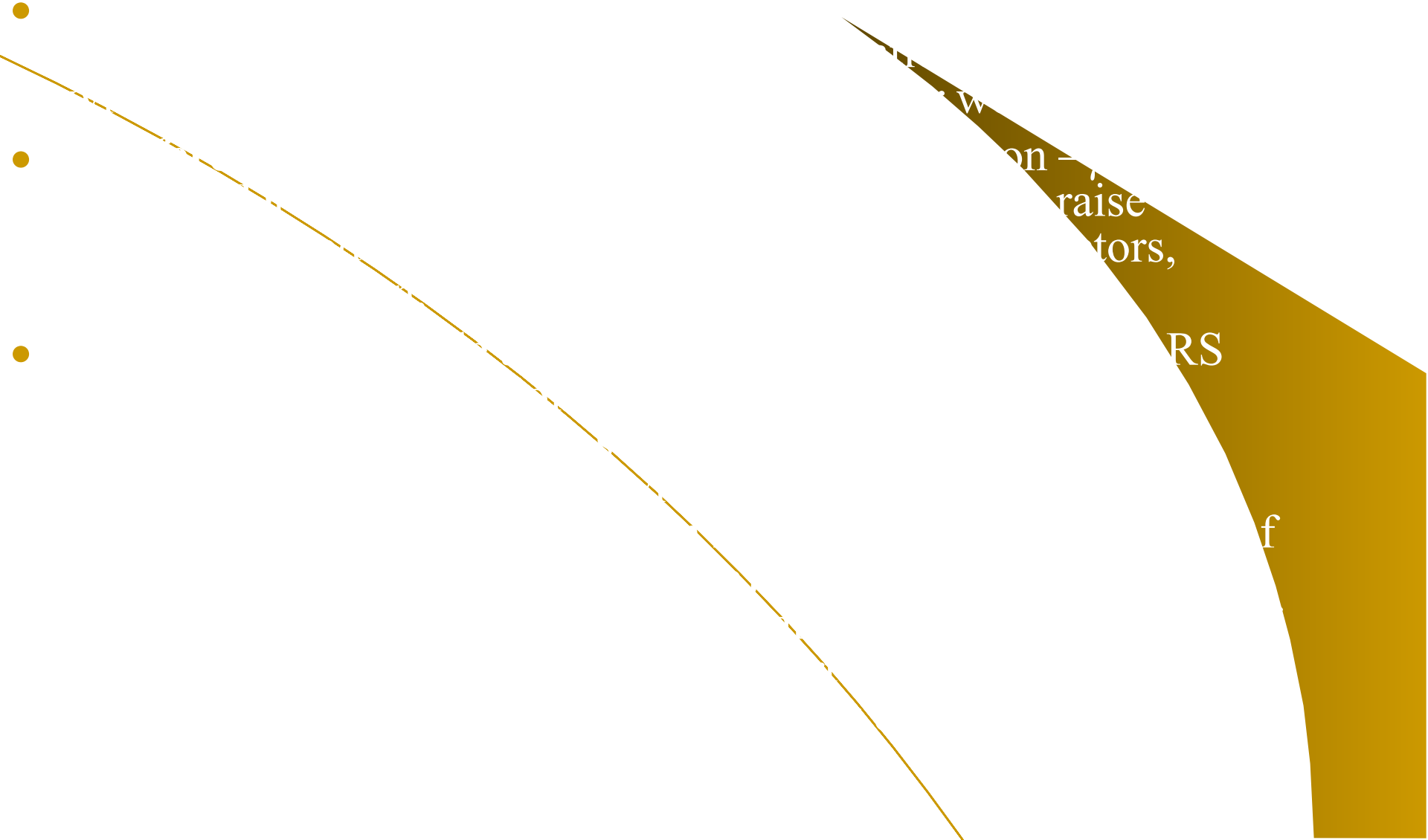
-
-
-
-
-
-

Etiotropic therapy in ARD

- R
- inh
- before
- atment
- o
- d in
- y

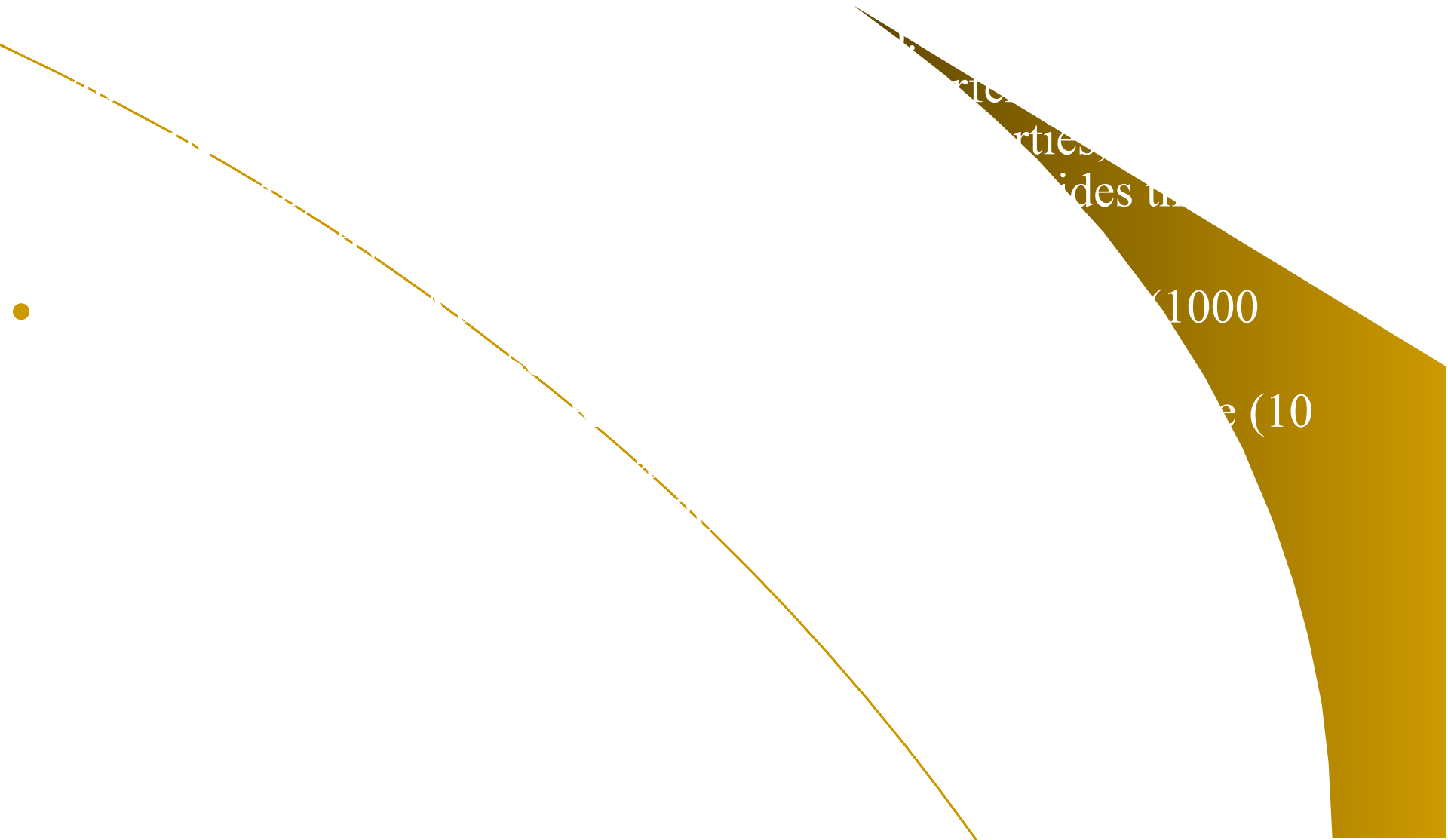
Etiotropic therapy in ARD

-
-
-



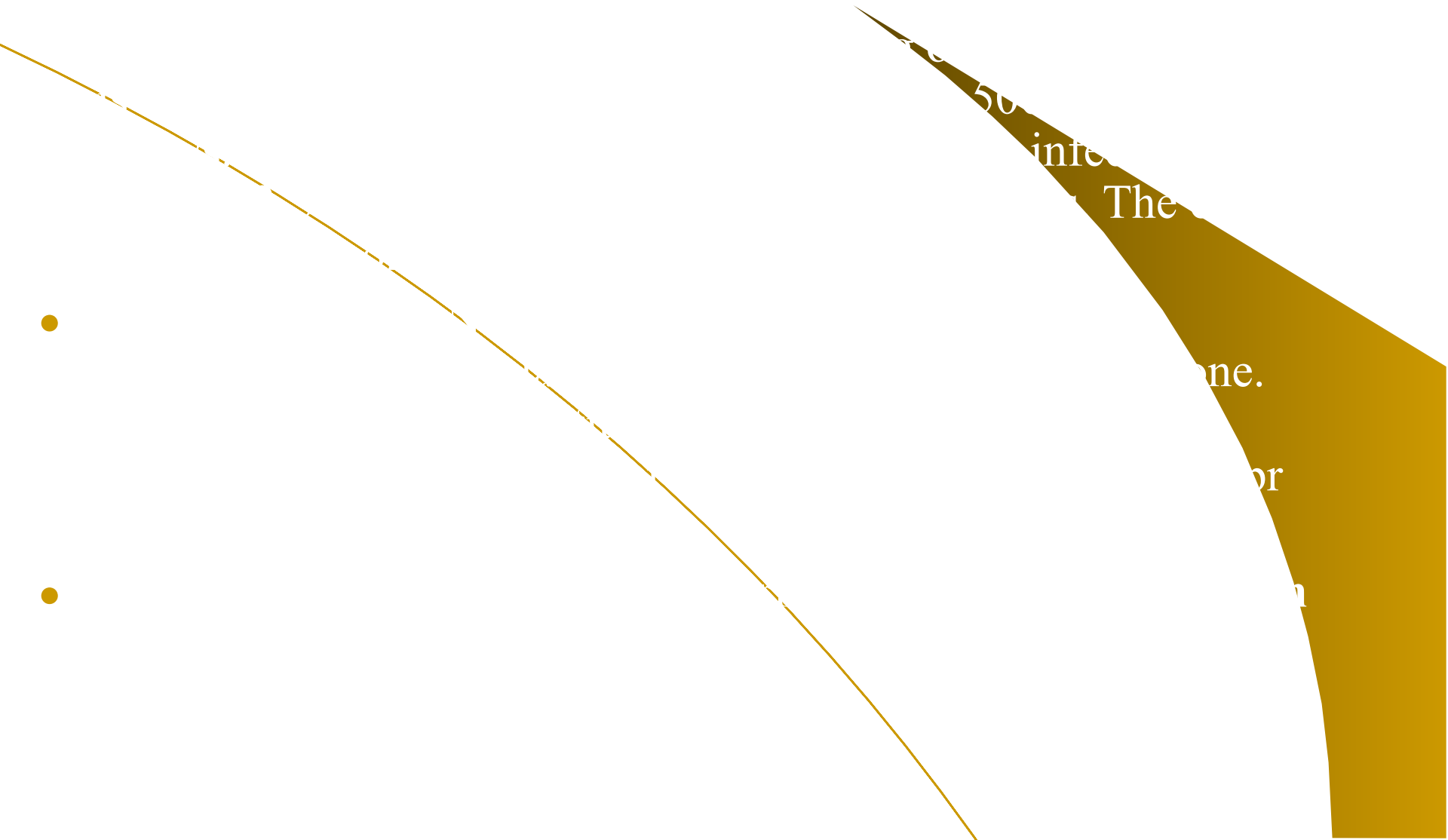
Etiotropic therapy in ARD

-
-

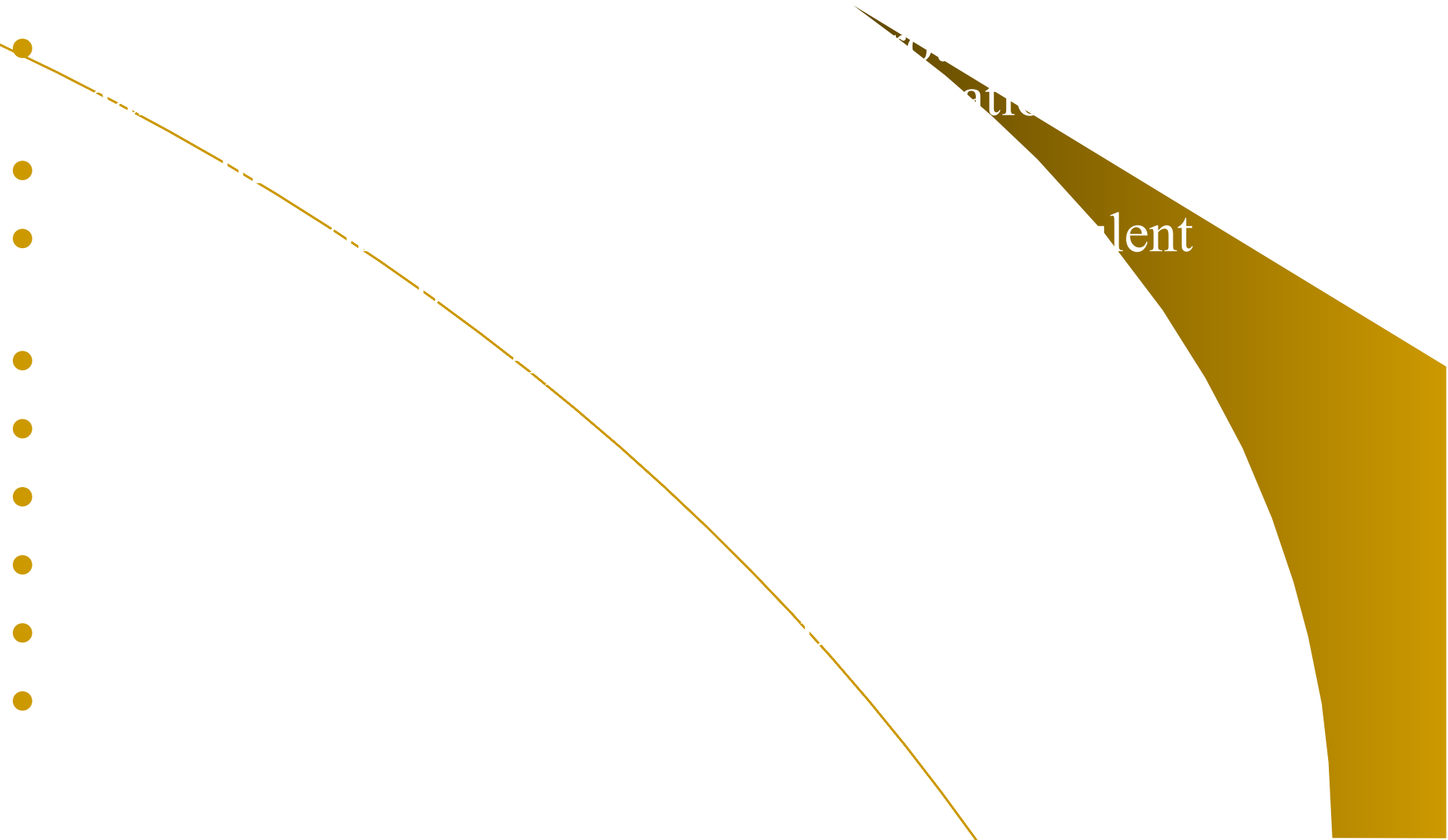


Etiotropic therapy in ARD

-
-
-



Indications for antibiotics in ARD



Control questions