

Coccidiosis

Introductions:

- It is one of the most important protozoal economic diseases.
- Mainly affect chicken, turkey and rabbit
- Usually occur after 3 weeks of age "prepatent period" causing high losses in broilers
- It resists anticoccidial drugs and disinfections

Economic importance:

- 1-Difficult to be control due to its oocysts are highly resistant to adverse environmental conditions by its tough hard wall**
- 2-Resistance to anticoccidial drugs and disinfections increase the costs for preventions**
- 3-Increase losses of body weights and feed conversions rate due to its infections**
- 4-Increase mortality rate**
- 5-Predispose to other disease
(Cl.perferngins,Ecoli...)**
- 6-Imparied immune response (failure of vaccination)**

Basics:

- 1–Intracellular protozoon, parasite of genus *Eimeria*
- 2–Short and complex life
- 3–Host and site specificity
- 4–Various degree of pathology and economic losses
- 5–The infective stage is sporulated oocysts (tetrasporocystic–disporozoic).
- 6–One oocyst can shed thousands of oocysts

- 7-Infection occur by ingestion of sporulated oocyst
- 8-The disease is characterized by a type of enteritis which leads to intestinal tissue damage so decrease absorption and feed conversions rates
- 9-The fresh dropping contains non sporulated non infective oocyst which sensitive to adverse environmental conditions and disinfections and sporulated become resistant and infective
- 10-The recovered bird develop variable degree of immunity
- 11-The immunity is specific i.e immunity against E.tenella only, not protect against E.Necatrix

Eimeria species

1–E.Acervulina:

- Present in anterior part of small intestine (selective absorption for specific amino acids)
- No bloody diarrhea
- No mortalities
- Increased economical losses, difficult to identify it
- Affects young age broilers mainly and may young layers

2–E.Maxima:

- Present in middle portion of small intestine
- Affects young age broilers mainly and may young layers

3-E.Tenella:

- Present in late portion of intestine (cecum)
- Affects young age broilers mainly and may young layers

4-E.Necatrix:

- Present in middle portion of small intestine
- Affects layers (6-8 weeks)

5-E.Bruntti:

- Present in posterior part of intestine
- Affects layers (6-8 weeks)

E.Tenella & E.Necatrix-----called killers (high mortalities& severe bloody diarrhea)

6-E. stiedae (Hepatic Coccidiosis)

leading to abscess like lesions in the liver of rabbit

7-E. pisiformis (Intestinal Coccidiosis)

leading to enteritis and salivation in rabbit.

Clinical signs:

- 1-off food
- 2- increased water intake
- 3-diarrhea (watery-----bloody)
- 4-humped arch& dropped wings
- 5-loss of vitality & mortality

P/M:

(Lesions score 1- 4 according to severity)

1-E.Acervulina-----points of white grayish necrosis on early portion of intestine

2-E.Maxima-----red spots on middle parts of intestine in broilers

3-E.Bruntti-----coagulative necrosis on the posterior part of intestine

4-E.Necatrix-----points of haemorrhages and necrosis on middle part of intestine in layers (salted pepper appearance) -----oocyst developed in 2 caecae but lesions in middle part of intestine

5-E.Tenella-----bloody cecal core (oocyst and lesions in caecum)

N.B---scraping sample from caecum found oocysts of both **E.tenella &E.necatrix**

Diagnosis:

1-Signs

2-P/M

3-Demonstration of large
number of oocyst in dropping
(microscopic)

N.B—in healthy chicks
normally found 1-2 oocysts in
feces



E.necatrix

E.necatrix





E.tenella



E.tenella

E.tenella





E.maxima



Prevention & control

1-Biosecurity & hygienic measures (control moisture and humidity)

2-Two options to prevent losses:

i-prevent or restrict infection by use of anticoccidial program

ii-controlled exposure (vaccination) ---by use wild strain on unsusceptible age (young, gizzard & liver enzymes not well developed so cannot break oocyst wall & can give immunity as sporozite come to litter)

N.B—cage system---not expose to coccidial infection and immunity not developed so if transferred to litter system and exposed to coccidial infection take severe form

-Age immunity-----immunity developed by increase age, previous exposure and vaccinations

Anticoccidial drugs

Anticoccidial used for prevention

-Affect the first stage of life cycle and usually added to the ration.

1-Ionophores (upset osmotic balance of coccidial oocyst)

a-lasalocid	Avatec [®]
b-Monensin	Cabon
c-Salinomycin	Coxistac
d-Mudramycin	Cygro
e-Narasin	Monteban
f-Semduramycin	Aviax

Anticoccidial used for treatment

-Affects the last stage of life cycle of coccidian and usually added in water.

1-Chemical Anticoccidial Agents

a-Amprolium + Ethopabate Amprol plus[®] (effective on E. Acervulina)

b-Diclazuril Clinacox

c-Toltrazuril

d-Clopidol Coyden

e-Clopidol+Methylbenzoquate Lerbeck

f-Rhobendin cycostat

g-Halofunginon Stenorl

h-Micarbazine Nicarb

2-Combined Ionophore&synthetic chemicals

a-Narasin+Nicarbazin Maxiban[®]

Programs:

Shuttle

Ionophores

Chemical

Chemical

Rotatory

Ionophores

Ionophores

Chemical

Immunization:

- 1-Planned controlled exposure: a----coccivac -
livacox - immunocox (wild strain)
b-----paracox (attenuated strain)
- 2-Trickle infection (non practical)—accidental,
leaving bird to expose to all types of Eimeria so
take natural immunity but non practical due to
increase body weight losses
- immunity occurs after accidental and planned
exposure

Disinfection:

- Ammonia release---50 kg hydrated lime + 100 kg amm.sulfate dissolved in 500 liter water

Ammonia released sufficient to 500m²

Ammonia kills---oocyst +act as a barrier to decrease RH

Treatment:

1-Sulpha dimidin

Sulpha quinoxaline

Sulpha dimethoxine

Sulpha chloropyrazone

2-toltrazuril by 7mg / kg b.w,

cross protection with diclazuril

3-Amprolium+Ethiopabat