

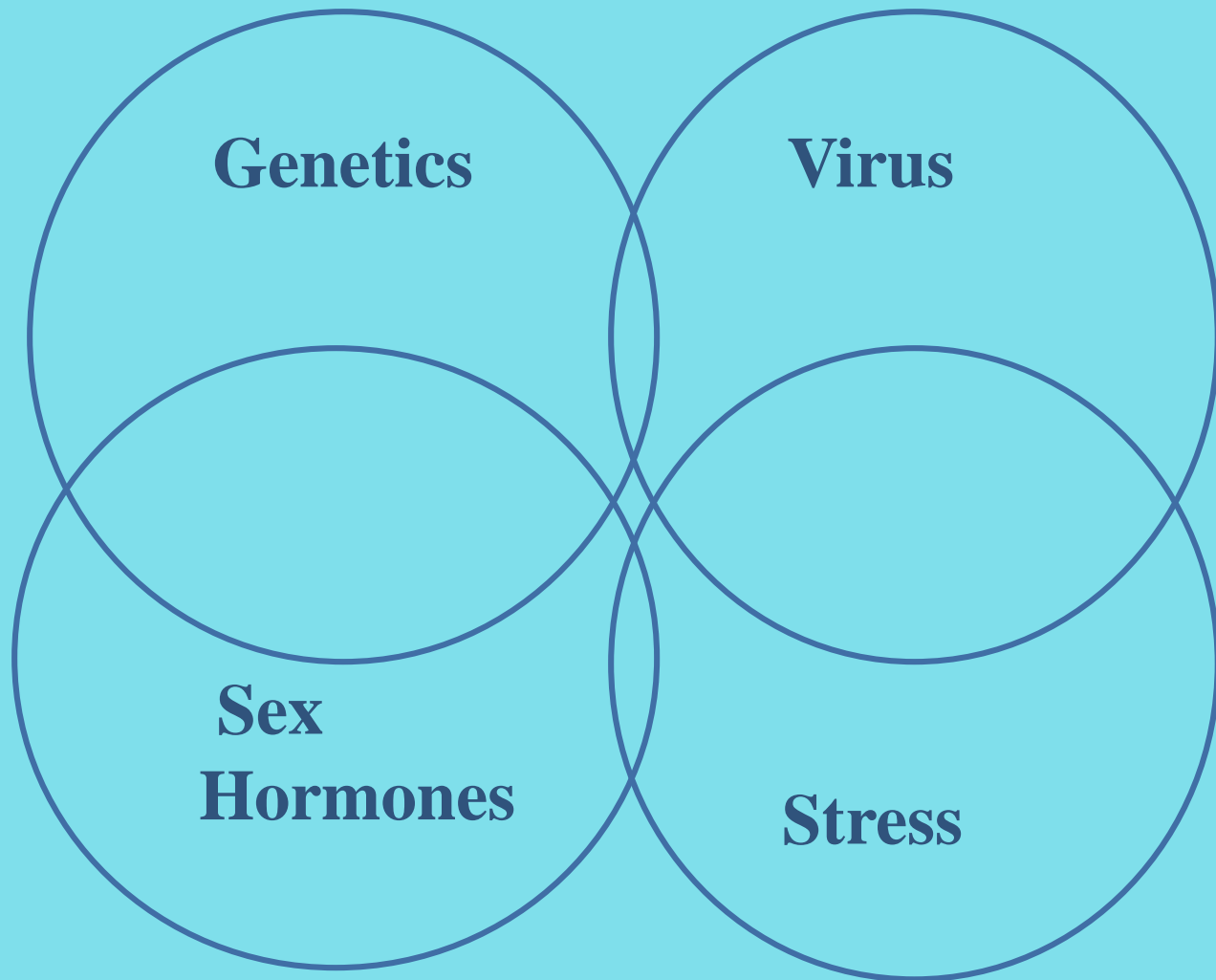
HEMOPET

Canine Health Seminar

August 18, 2016

UPDATE on VACCINE ISSUES

W. Jean Dodds, DVM



Etiology of Autoimmune Diseases

Key Points on Vaccine Issues

- ❖ Modern vaccine technology has afforded effective protection of companion animals against serious infectious diseases
- ❖ But, this advancement brings increased risk of adverse reactions (vaccinosis)
- ❖ Some are serious, chronically debilitating and even fatal
- ❖ Must balance this benefit : risk equation
- ❖ “ Be wise and immunize, but immunize wisely ! ” (Ron Schultz)

Benefits of Vaccines

- ❖ More lives saved, more animal production safeguarded than any other medical advance
- ❖ Eradicated smallpox, & nearly all polio and measles in people
- ❖ First vaccines were against small pox, anthrax, and canine distemper
- ❖ Significantly reduced endemics of canine distemper, hepatitis and parvovirus, but not in wildlife reservoirs
- ❖ Significantly reduced endemic feline panleukopenia
- ❖ Eliminated rabies in Europe; eradicated Rinderpest in Africa, foot & mouth disease in Europe

Vaccines & Population (Herd) Health

- ❖ To protect the population (herd) = 70 % immunized with “core” vaccines but
- ❖ Dog population = only about 50% immunized
- ❖ Cat population = only about 25% immunized
- ❖ Best “vaccine” = natural exposure, but about 50% of susceptible puppies or kittens will die of the disease
- ❖ Vaccine non-responders and low-responders = genetic trait

Vaccine Non-Responders

- ❖ Genetic trait ; do not breed them
- ❖ They will remain susceptible to the disease life long
- ❖ Rate = 1:1000 for CPV (parvovirus)
 - Especially Black Labradors and Akitas
- ❖ Rate = 1: 5000 for CDV (distemper virus)
 - Especially Greyhounds
- ❖ Rate = zero for CAV (hepatitis, adenovirus)
- ❖ Rate = unknown for cats

Adverse Reactions & Cautions

Canine Distemper Virus

- ❖ Rate = 1:100,000 for Rockborn & Snyder Hill vaccine strains
- ❖ Rockborn strain CDV found in most of today's MLV vaccines
- ❖ Produces PVE = post-vaccinal encephalitis, blindness & death
- ❖ Recombinant (rCDV) Recombitek (Merial) cannot cause PVE
- ❖ Rate = 1: 500,000 for Onderstepoort strain , but less potent
- ❖ When MLV CDV combined with adenovirus (Hepatitis) in combo , risk of immune suppression and PVE increases—especially in puppies

Kennel Cough & Vaccines

Intranasal Bordetella

- ❖ Contains interferon , which impairs growth of other respiratory viruses (parainfluenza, adenovirus - 2, influenza)
- ❖ Injectable Bordetella vaccine does not contain interferon
- ❖ Hypersensitivity reactions known with intranasal vaccine
- ❖ Kennel cough vaccines are not 100% effective . Needed ?

Influenza (vaccine needed?)

- ❖ Produces fever whereas kennel cough does not. When combined with Strep., 2-3% will die

Alternatives to Current Vaccine Practices

- ❖ Measure serum antibody titers
- ❖ Avoid unnecessary vaccines or over-vaccinating
- ❖ Caution vaccinating sick or febrile animals
- ❖ Tailor specific minimal vaccine protocol for dogs/cats breeds or families at risk for adverse reactions
- ❖ Start vaccination series later (9-10 wks, dog; 8 wks cat)
- ❖ Alert caregiver to watch puppy/kitten behavior and health after boosters
- ❖ Avoid revaccination of those with prior adverse event

“Core” Vaccines *

Dog

Cat

Distemper

Feline Parvovirus

Adenovirus

Herpesvirus

Parvovirus

Calicivirus

Rabies

Rabies

*** Vaccines that every dog and cat should have**

Maternal Immunity & Protection

Milk Replacer

- ❖ Feeding milk replacer proteins instead of natural colostrum will coat bowel of newborns and shut down absorption of antibodies needed for protection from disease
- ❖ Give FFP (Fresh-Frozen Plasma) immediately to orphan or weak pups to get passive immunity ; then add milk replacer

Vaccine Timing

- ❖ Last puppy vaccine at 14-16 weeks for protection
- ❖ Last kitten vaccine at 12-14 weeks for protection

Vaccine Dosage

Body Mass

- ❖ Same dose intended for toy and giant breeds
- ❖ Why ?
- ❖ MLV vaccines -- immunogenic principle not based on body mass
- ❖ Killed vaccines -- should be adjusted for body mass
- ❖ Minimum/optimum doses for protection
- ❖ Excess antigen present

Half-Dose CDV & CPV Vaccine Study in Small Breed Adult Dogs

W. Jean Dodds, DVM [JAHVMA, vol. 39; *in press*, 2015]

- ❖ Small breed adult dogs, between 3-9 years of age, were studied.
- ❖ Dogs were healthy and had no vaccines for at least 3 years.
- ❖ Purpose was to determine if just half-dose of bivalent CDV & CPV vaccine elicited protective serum antibody titer responses.
- ❖ Titer levels compared 1 & 6 months later vs pre-vaccine titers.
- ❖ Half-dose vaccine resulted in sustained protective serum antibody titers for all dogs studied.

Vaccine Dosage (cont'd)

Age

- ❖ Optimal age for response
 - 12 wks + for puppies;
 - 10 wks for kittens;
 - Same for all breeds and sizes?
- ❖ Earliest age for safety
 - 6 wks for puppies and kittens
- ❖ Effective age varies
- ❖ Blocking effects of maternal immunity

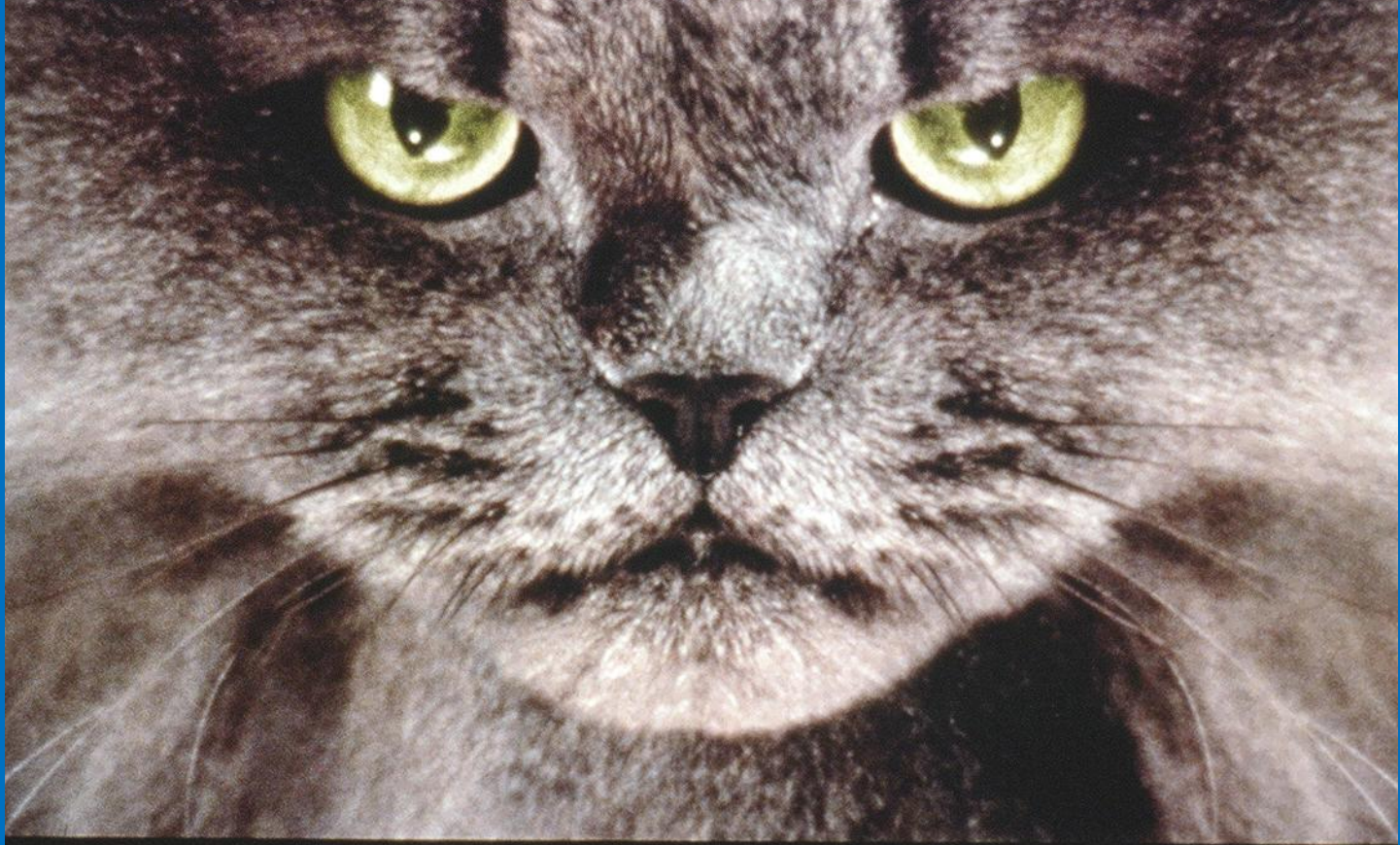
Hormonal State During Vaccination

Avoid Vaccination

- ❖ Period just before estrus (30 days)
- ❖ During estrus
- ❖ Pregnancy
- ❖ Lactation

Periodicity of Booster Vaccinations

- ❖ No evidence that annual boosters are necessary
- ❖ Need to lengthen interval
(every 3-7 years or more for healthy adults)
- ❖ Geriatric animals vaccinated only with caution
- ❖ Monitor serum antibody titers instead



YOU WANT TO
DO *What* WITH
THAT NEEDLE?

Current Vaccine Guidelines

- ❖ Failure to offer options (titers) to clients
- ❖ Pet owner awareness and concerns
- ❖ Ignorance and the impressionable client
- ❖ Public trust of veterinarians questioned
- ❖ Perceived conflict of interest (\$ versus options)
- ❖ Failure to recognize or denial of adverse events
- ❖ Need for legal mandate standard for rabies vaccination

Options & Solutions

Education, Education, Education

- ❖ Understand duration of vaccinal immunity
- ❖ Accept potential for adverse events
- ❖ Recognize adverse events rather than dismiss or deny them
- ❖ Inform clients of issues and encourage options
- ❖ Offer titers for core vaccines triennially/more often
- ❖ Explain optional vaccines may not be needed

Vaccine Conclusions for Canines*

Factors that increase risk of adverse events 3 days after vaccination:

- ❖ Young adult age
- ❖ Small-breed size
- ❖ Neutering
- ❖ Multiple vaccines given per visit
- ❖ These risks should be communicated to clients

* from Moore et al, JAVMA 227:1102–1108, 2005

Reasons for Vaccine Titer Testing *

- ❖ To determine that animal is protected (suggested by a positive test result)
- ❖ To identify a susceptible animal (suggested by a negative test result)
- ❖ To determine whether an individual animal has responded to a vaccine
- ❖ To determine whether an individual vaccine is effectively immunizing animals

* from: Schultz, Ford, Olsen, Scott. Vet Med, 97: 1-13, 2002
(insert)

The Thimerosal-Free Rabies Vaccine



New Data on Rabies Titers

(Moore et al, JAVMA 246:205-211, 2015)

- ❖ Anamnestic antibody responses with current vs out-of-date rabies vaccines in 74 dogs/33 cats
- ❖ All animals had RFFIT antirabies antibody titer > 0.5 IU/mL , 5-15 days after rabies booster
- ❖ Dogs with out-of-date vaccine status had higher median titer increase after rabies booster
- ❖ Most (26/33) cats had titers > 12 IU/mL , 5 -15 days after booster
- ❖ Findings = **immediate booster vaccination with observation for 45 days in dogs/ cats with out-of-date vaccine status, if exposed to rabies, as is practice for those current on vaccine**
- ❖ Presently, out-of-date rabies case , if exposed to proven or suspect rabid animal = euthanasia or 6 month quarantine

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And How You Can Help —

www.rabieschallengefund.org

