



ASOCIACIÓN DE MÉDICOS VETERINARIOS ESPECIALISTAS EN AVES

Conferencia:	Estrategias de vacunación en reproductoras pesadas por una eficiente transferencia pasiva
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Expositor:	Dr. Jagdev Sharma

Passive Transfer of Immunity in Chickens

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Newly hatched chick is unable to defend against microbial invasion during the first few days of life. Passive transfer of immunity from the mother to the chick is essential for survival of the chick. Preformed antibodies, specific against local environmental pathogens, are transferred from hen's circulation to the egg yolk.

IgY is the only class of immunoglobulins that accumulates in the yolk. The transfer of immunoglobulins from the yolk to the chick begins before hatch and continues for at least 24 hours after hatch. In addition to IgY, the egg also acquires small amounts of IgM and IgA as the egg passes through the oviduct. These two classes of immunoglobulins are deposited in the albumin which, during incubation, diffuses into amniotic fluid. The embryo acquires IgM and IgA by swallowing amniotic fluid. Thus, at hatch, the chick has IgY in the blood and IgM and IgA in the gut.

Passively transferred antibodies protect the newly hatched chicken against environmental pathogens for the first 2-4 weeks of life. Subsequently, the chicken can defend against pathogen by mounting an acquired immune response. Although the immune system is functional before hatch, full immunological maturity takes several weeks and is dependent upon exposure to multiple antigens.

In commercial poultry production, we rely on passive immunity for early post-hatch control of several important diseases. Infectious bursal disease is one good example. Routine management of infectious bursal disease virus involves hyperimmunization of dams in an effort to passively transfer maximum qualities of antibodies to newly hatched chicks.



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Passive antibodies protect the chicks against imminent environmental exposure to pathogenic strains of the virus. In most broiler flocks, additional vaccinations may be needed to maintain protective immunity.

Although passively transferred immunity is critical for early post-hatch protection against infectious disease, presence of immunity may negatively impacts the ability of the chicken to mount active immunity against vaccines. Studies in wild birds have shown that chicks from dams immunized against lipopolysaccharide may respond more vigorously to active immunization with lipopolysaccharide than chicks from unimmunized dams. This potentially positive effect of passive immunity needs further study in chickens.