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A Brief Note on Parasitology in Veterinary Medicine

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Description

Veterinary parasitology is the study of animal parasites particularly parasite-host relationships. Domestic animal (livestock and pet animal) and wildlife animal parasites are taken into account. Veterinary parasitologists study the genesis and development of parasitoses in animal hosts as well as parasite taxonomy and systematics including parasite morphology, life cycles and living needs in the environment and in animal hosts. They diagnose, treat and prevent animal parasitoses using a variety of research methods. Data obtained from animal parasitological research aids veterinary practise and improves animal breeding. The primary goal of veterinary parasitology is to protect animals and improve their health because many animal parasites are transmitted to humans. Veterinary parasitology is also concerned with human health.

The immunisation of a domestic, livestock or wild animal is known as animal vaccination. The profession is related to veterinary medicine. The production of such vaccines faces challenges due to the economic difficulties of individuals, governments and businesses. Animal vaccinations are subject to less regulation than human vaccinations. Rabies is a recent and well-known example of a zoonotic disease. It is transmitted from animal to human and other animal *via* saliva, bites and scratches. The rabies virus can infect both domestic and wild animals. To date, there have been fewer than 20 documented cases of rabies survival without treatment. As a result of limited healthcare, the majority of cases and deaths occur in Africa and Asia. Because of the disease's long incubation period, the rabies vaccine can be given either before or after infection.

Pet ownership has increased rapidly as owners are concerned about the health of their companion animals. Farmed animal vaccines on the other hand are typically produced only when a zoonotic disease is present or has a significant impact on international trade. Rather than being vaccinated solely for the purpose of caring for the animal as it is the case with pets, farmed animals are vaccinated for human safety and economic reasons. This is clearly related to pharmacovigilance (monitoring the effects of licenced drugs). The Veterinary Medicines Directorate (VMD) in the United Kingdom has the largest database. However the vast majority of reports were in the form of companion animals.

The two most common conventional vaccines are live-attenuated and inactivated vaccines. Live-attenuated vaccines use a weakened form of the disease-causing virus or bacteria. Because this type of inoculation is the most similar to the actual infection, it has been shown to have a stronger effect than the other types of conventional vaccines. Despite this, there have been some concerns about the safety of live-attenuated vaccines. There is a risk of unintended consequences if another being other than the target species receives the vaccine and there have been cases where this type of vaccine produces false positives when animals are tested robbing a country of its disease-free status (as has been seen through Foot and Mouth Disease FMD). Furthermore inactivated vaccines are made up of bacterians.

Pathogen genomic analysis and a better understanding of pathogen mechanisms have led to the discovery of antigens and the development of recombinant veterinary vaccines. Currently the pathogen's genome is being sequenced the genes that cause the disease are being identified the genes of interest are being cloned a recombinant is being created and one of three types of vaccines are being developed (DNA vaccines, Subunit vaccines, Vectored vaccines). DNA vaccines cause the host to produce antigens. It is a plasmid that contains a gene from a virus, bacteria or parasite. The expressed protein is recognised as foreign by the animal's immune system which can result in a cellular or humeral response. The use of DNA vaccines eliminates the safety concerns associated with live-attenuated vaccines. Furthermore subunit vaccines are made up of short specific pathogens that do not replicate. Even though this vaccine is deemed safe it, does not replicate and thus studies have revealed yield issues. Another type of next-generation vaccine is vectored vaccines. This type of vaccine employs a vector to deliver one or more proteins to the animal's immune system. Plant vaccines which fall under the category of vector vaccines are currently being researched.

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