Risks and benefits of vaccination – a selection of references from CAB Abstracts

<1>
Accession Number
20123241397
Author
Lappin, M. R.
Title
Feline vaccine issues.
Source
Publisher
The North American Veterinary Conference
Location of Publisher
Gainesville
Country of Publication
USA
Publication Type
Conference paper.

<2>
Accession Number
20123112639
Author
Title
Large-scale survey of adverse reactions to canine non-rabies combined vaccines in Japan.
Source
Veterinary Immunology and Immunopathology; 2012. 145(1/2):447-452. 14 ref.
Publisher
Elsevier Ltd
Location of Publisher
Oxford
Country of Publication
UK
Abstract
Canine non-rabies combined vaccines are widely used to protect animals from infectious agents, and also play an important role in public health. We performed a large-scale survey to investigate vaccine-associated adverse events (VAAEs), including anaphylaxis, in Japan by distributing questionnaires on VAAEs to veterinary hospitals from April 1, 2006 through May 31, 2007. Valid responses were obtained for 57,300 vaccinated dogs at 573 animal hospitals; we obtained VAAEs information for last 100 vaccinated dogs in each veterinary hospital. We found that of the 57,300, 359 dogs showed VAAEs. Of the 359 dogs, death was observed in 1, anaphylaxis in 41, dermatological signs in 244, gastrointestinal signs in 160, and other signs in 106. Onset of VAAEs was mostly observed within 12 h after vaccination (n=299, 83.3%). In this study,
anaphylaxis events occurred within 60 min after vaccination, and about half of these events occurred within 5 min (n=19, 46.3%). Furthermore, where anaphylaxis was reported, additional information to support the diagnosis was obtained by reinvestigation. Our resurvey of dogs with anaphylaxis yielded responses on 31 dogs; 27 of these demonstrated collapse (87.1%), 24 demonstrated cyanosis (77.4%), and both signs occurred in 22 (71.0%). Higher rates of animal VAAEs, anaphylaxis, and death were found in Japan than in other countries. Further investigations, including survey studies, will be necessary to elucidate the interaction between death and vaccination and the risk factors for VAAEs, and thus develop safer vaccines. Moreover, it may also be necessary to continually update the data of VAAEs.

**Publication Type**
- Journal article.

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**<3>**

**Accession Number**
- 20133294247

**Author**
- Shmuel, D. L.; Cortes, Y.

**Title**
- Anaphylaxis in dogs and cats.

**Source**

**Publisher**
- Wiley-Blackwell

**Location of Publisher**
- Oxford

**Country of Publication**
- UK

**Abstract**

**Objective:** To review and summarize current information regarding the pathophysiology and clinical manifestations associated with anaphylaxis in dogs and cats. The etiology, diagnosis, treatment, and prognosis is discussed. **Etiology:** Anaphylaxis is a systemic, type I hypersensitivity reaction that often has fatal consequences. Many of the principal clinical manifestations involve organs where mast cell concentrations are highest: the skin, the lungs, and the gastrointestinal tract. Histamine and other deleterious inflammatory mediators promote vascular permeability and smooth muscle contraction; they are readily released from sensitized mast cells and basophils challenged with antigen. Anaphylaxis may be triggered by a variety of antigens including insect and reptile venom, a variety of drugs, vaccines, and food. **Diagnosis:** Anaphylaxis is a clinical diagnosis made from a collection of signs and symptoms. It is most commonly based on pattern recognition. Differential diagnoses include severe asthma, pheochromocytoma, and mastocytosis. **Therapy:** Epinephrine is considered the drug of choice for the treatment of anaphylaxis. It acts primarily as a vasopressor in improving hemodynamic recovery. Adjunctive treatments include fluid therapy, H1 and H2 antihistamines, corticosteroids, and bronchodilators; however, these do not substitute for epinephrine. **Prognosis:** Prognosis depends on the severity of the clinical signs. The clinical signs will vary among species and route of exposure. The most severe clinical reactions are associated when the antigen is administered parenterally.  

**Publication Type**
- Journal article.

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**<4>**

**Accession Number**
- 20133178264

**Author**
- Lefebvre, S.

**Title**
- Review of emergency consultations.
The purpose of the present study was to characterize emergency visits and determine the annual incidence of specific ailments requiring immediate care in animals presented at Banfield hospitals in the USA. Records for all cats and dogs seen at Banfield hospitals in 2011 were used to identify appointments designated as "emergency/urgent" and patients with a diagnosis suggesting an ailment requiring urgent care. It was shown that 429,682 cats and 2,021,849 dogs were treated at Banfield hospitals. Of these, 13,658 dogs and 2,150 cats (0.7 and 0.5% of all patients, respectively) were admitted on an emergency basis. Dogs were 40% more likely to be brought in for an emergency visit than cats. The most common presenting complaint for dogs was unspecified poisoning, whereas that for cats was a bite or fight wound. Several canine breeds were identified as being significantly (P<0.05) more likely to have a diagnosis of animal bite than others, namely the Rat Terrier, Fox Terrier, Boston Terrier and Jack Russell Terrier. Sexually intact dogs as well as Fox Terriers and Pit Bulls were more likely to be seen after being hit by a vehicle. Of the sexually intact dogs, males were 40% more likely to present than females for automobile injury. Breeds most likely to have a vaccine reaction diagnosis were Dachshund, Chihuahua and Pug. Only 15 cats seen at an emergency appointment were diagnosed with a vaccine reaction, and there was no significant difference between the proportions of the neutered and sexually intact cats for this diagnosis. Various types of toxicoses or poisonings were diagnosed during the emergency appointments. In dogs, chocolate toxicosis was most common, while in cats, it was pyrethroid/pyrethrin toxicosis. The number of dogs seen as emergencies with foreign bodies was low (39 oral, 6 ocular and 2 respiratory cases per 10,000 dogs). In cats, the incidence of oral foreign bodies was considerably higher (240 cases/10,000 cats seen) but the number of ocular (5) and respiratory (1) cases were similar to dogs. These findings are useful in understanding the most common types of emergency visits in general veterinary practice and to help practices prepare for the unexpected.
Accession Number
20103254756
Author
Moore, G. E.; HogenEsch, H.
Title
Adverse vaccinal events in dogs and cats. (Special Issue: Immunology: function, pathology, diagnostics, and modulation.)
Source
Publisher
W.B. Saunders
Location of Publisher
Philadelphia
Country of Publication
USA
Abstract
Adverse vaccinal events, or perceived vaccine-associated adverse events, are relatively uncommon in companion animal practice. These events, however, often evoke great concern to owners and veterinarians. Because of the low incidence of these events and the large number of potential antigenic causes, exact mechanisms are often difficult to elucidate. This article reviews current evidence related to the immunologic basis of adverse events seen after canine and feline vaccination.
Publication Type
Journal article.

Accession Number
20103153328
Author
Ford, R. B.
Title
When vaccination goes wrong.
Source
Publisher
American College of Veterinary Internal Medicine
Location of Publisher
Lakewood
Country of Publication
USA
Publication Type
Conference paper.

Accession Number
20103139559
Author
Dean, R.; Pfeiffer, D.; Adams, V.
Title
Attitudes and actions of general practitioners to adverse events following feline vaccination.
Source
Publisher
British Small Animal Veterinary Association
Location of Publisher
Qedgeley
Country of Publication
UK
Publication Type
Conference paper.

Accession Number
20103138838
Author
Gruffydd-Jones, T.
Title
Review of vaccination protocols for cats.
Source
34th World Small Animal Veterinary Association Congress, Sao Paulo, Brazil, 21-24 July 2009; 2009. :unpaginated. 7 ref.
Publisher
World Small Animal Veterinary Association
Location of Publisher
Sao Paulo
Country of Publication
Brazil
Publication Type
Conference paper.

Accession Number
20103129943
Author
Moore, G. E.
Title
Risk assessment for canine and feline vaccinations.
Source
Publisher
American College of Veterinary Internal Medicine
Location of Publisher
Lakewood
Country of Publication
USA
Publication Type
Conference paper.

Accession Number
20063239685
Author
Title
The 2006 American Association of feline practitioners: feline vaccine advisory panel report.
Source
Journal of the American Veterinary Medical Association; 2006. 229(9):1405-1441. 213 ref.
Publisher
American Veterinary Medical Association
Location of Publisher
Schaumburg
Country of Publication
USA
Publication Type
Journal article.

Accession Number
20063193504
Author
Wood, J. L. N.; Adams, V. J.
Title
Epidemiological approaches to safety investigations. (Special issue: Canine and feline vaccination - a scientific re-appraisal.)
Source
Veterinary Microbiology; 2006. 117(1):66-70. 11 ref.
Publisher
Elsevier
Location of Publisher
Amsterdam
Country of Publication
Netherlands
Abstract
This paper considers the different approaches to post-authorisation safety monitoring of veterinary medicinal products that is essential to ensure confidence in their safety. Most safety testing is undertaken prior to granting of a marketing authorisation and is generally on a small scale. Field trials are usually much larger, but still involve relatively low numbers of animals compared to the number to which authorised products are administered. Safety testing is generally aimed at detecting common events; the numbers of animals used in the tests are too small for detection of all but the most common reactions. The efficiency of the tests depends on the frequency and severity of the adverse reaction and the ability to associate the adverse event with the product. The latter is affected by the period of time between administration and the event, as well as by its underlying frequency. Adverse reaction surveillance is critical in monitoring the safety of a marketed product. Most is entirely passive and so reporting rates are likely to underestimate true incidence. It is relatively efficient for rare, serious adverse effects and for those with a low underlying frequency in the population, but it is less useful when there is a long period between administration and the event, or where the event has a relatively high underlying frequency. Greater emphasis should be placed on active surveillance after production registration. Detailed epidemiological investigations, including cohort, case control and cross-sectional designs, offer the only approaches that provide more information on the association between a product and events that have a high underlying frequency in the population or where there is a long period between administration and the adverse event. The relative merits of different approaches are discussed, with particular reference to our recently published study of the temporal association between canine vaccination and non-specific signs of ill health and plans to undertake studies of
associations with feline injection site sarcoma. Emphasis is placed on the need for clearly stated hypotheses and the consideration of equivalence, rather than significance testing when considering safety studies.

Publication Type
Journal article.

Accession Number
20063193493
Author
Rottier, P. J. M.; Sutton, D.
Title
Special issue: Canine and feline vaccination - a scientific reappraisal. (Special issue: Canine and feline vaccination - a scientific re-appraisal.)
Source
Publisher
Elsevier
Location of Publisher
Amsterdam
Country of Publication
Netherlands
Abstract
This supplement is comprised of 16 papers presented at a 2-day international scientific symposium on canine and feline vaccination. The papers are grouped into 4 main topics: vaccine efficacy and disease prevention; new developments; vaccine safety; and current vaccination issues. The side effects of some vaccines and the regulations regarding duration of immunity are discussed in several papers. Three papers emphasize the prevention of canine parvovirus, feline calicivirus and canine leptospirosis through vaccination.
Publication Type
Journal issue.

Accession Number
20053058043
Author
Ohmori, K.; Masuda, K.; Maeda, S.; Kaburagi, Y.; Kurata, K.; Ohno, K.; DeBoer, D. J.; Tsujimoto, H.; Sakaguchi, M.
Title
IgE reactivity to vaccine components in dogs that developed immediate-type allergic reactions after vaccination.
Source
Veterinary Immunology and Immunopathology; 2005. 104(3/4):249-256. 18 ref.
Publisher
Elsevier
Location of Publisher
Amsterdam
Country of Publication
Netherlands
Abstract
Allergic reactions after vaccination are considered as an important practical problem in dogs; however, their immunological mechanism has not been well understood. The present study was designed to investigate the relationship between IgE reactivity to the vaccines and immediate-type allergic reactions after vaccination in
dogs. Sera from 10 dogs that developed immediate-type allergic reactions such as circulatory collapse, cyanosis, dyspnoea, facial oedema, and vomiting within 1 h after vaccination with non-rabies monovalent or combined vaccines and sera from 50 dogs that did not develop allergic reactions after vaccination were collected. Serum IgE reactivity to the injected vaccines was measured by fluorometric ELISA using a mouse monoclonal anti-dog IgE antibody. Then, IgE reactivity to fetal calf serum (FCS) and stabilizer proteins (gelatin, casein, and peptone) included in the vaccines was measured in sera that had high levels of IgE to the vaccines. Levels of serum specific IgE to the vaccines in dogs with immediate-type allergic reactions (59-4173 fluorescence units [FU], mean±S.D.: 992.5±1181.9 FU) were significantly higher than those in control dogs (38-192 FU, 92.4±43.3 FU) (P<0.001). Of the eight dogs that developed immediate-type allergic reactions and had high levels of serum specific IgE to the vaccines, seven had specific IgE directed to FCS. The IgE reactivity to the vaccines in sera from these dogs was almost completely inhibited by FCS. The other one dog had serum IgE directed to gelatin and casein included in the vaccine as stabilizers. The results obtained in this study suggest that immediate-type allergic reactions after vaccination in dogs were induced by type I hypersensitivity mediated by IgE directed to vaccine components. In addition, FCS, gelatin, and casein included in vaccines could be the causative allergens that induced immediate-type allergic reactions after vaccination in dogs.

Publication Type
Vaccine-associated adverse events. (Vaccines and vaccination)

Source

Publisher
W.B. Saunders

Location of Publisher
Philadelphia

Country of Publication
USA

Publication Type
Journal article.

Vaccines are essential in the control of infectious diseases and have significantly diminished the prevalence of many diseases. Since vaccination is a common procedure in practice, the veterinarian must be able to discuss the basics of vaccination with the animal owner. Immunogens in veterinary vaccines most often are attenuated and live or inactivated whole microbes, or antigens purified from microbes. Gene technology is also used in the vaccine production. In addition to immunogens, some vaccines need adjuvants, which stimulate the immune response in various ways. Vaccination aims to stimulate the immune system in order to develop a strong and long-lasting protection from a disease. The degree of protection achieved with the vaccination is variable. Some vaccines only protect from clinical disease or severe symptoms, but do not prevent infection. Achieving high vaccination coverage not only protects the vaccinated individual, but can also control the disease within a population. Vaccine efficacy, disease epidemiology and population characteristics affect the ability of a vaccine to control the disease. Any vaccination carries a risk for adverse effects, which can range from mild to severe and can manifest rapidly or delayed, up to years after vaccination. Vaccination should therefore be based on a risk assessment, and the benefits should far outweigh the risks.

Publication Type
Journal article.
Accession Number
20143233837
Author
Purushothaman, V.
Title
Vaccines and their adverse reaction.
Source
Publisher
Tamilnadu Veterinary and Animal Sciences University
Location of Publisher
Chennai
Country of Publication
India
Abstract
This article gives an overview on the history and types of vaccines as well induction of immunity by vaccines. Vaccine controversies are discussed, with focus on its potential adverse side effects. The efficacy of vaccines, factors influencing vaccine efficacy, known and suspected adverse effects of vaccines, economics of vaccine development, vaccine preservatives, reverse vaccinology, development of vaccines in the 20th century and characteristics of the ideal vaccine are also discussed. Moreover, the development of an oral pellet vaccine to control Newcastle disease in village chickens, a safe and potent anthrax vaccine, Escherichia coli biofilm vaccine and vaccine for sheep pasteurellosis is outlined. The use of a protective antigen of Bacillus anthracis for diagnosis and vaccine development is also presented.

Accession Number
20143184918
Author
Mallem, Y.; Rozenblum, M.; Pouliquen, H.
Title
Veterinary pharmacovigilance: user guide. [French]
Source
Point Veterinaire; 2014. 45(345(Part 1)):24-28.
Publisher
Wolters Kluwer France
Location of Publisher
Rueil-Malmaison
Country of Publication
France
Abstract
Veterinary pharmacovigilance studies the adverse effects of veterinary medicinal products after they have been placed on the market. Information about suspected lack of efficacy, potential environmental risks as well as the validity of the drug withdrawal times are also taken into account. In France, information provided to the national veterinary pharmacovigilance system, which was formally established in 2002, is mainly supplied by spontaneous declaration. According to the 2013 annual report of pharmacovigilance by the National Agency for Veterinary Medicinal Products, 83% and 9% of reports of adverse effects in 2012 relate respectively, to domestic carnivores and cattle. External parasiticides and vaccines are the drug classes most frequently cited in notifications concerning dogs and cats. Despite the effectiveness of the current system, incentives and encouragement are still required in practice to improve the participation of the service notifiers of the proper use and safety of veterinary medicinal products.
The paper summarises vaccination of cattle and swine in the Nordic countries. The importance of weighing risks and benefits as well as the need for an evidence basis is emphasised, while recognising vaccination as an important tool for the control and management of infectious diseases. Available vaccines in Sweden and their routine use are reported as well as the evidence of efficiency. Recent development in the field of vaccine research and new risks are also discussed, with emphasis on Nordic research. Finally the application of vaccination in disease outbreaks is reviewed, in particular as regards the importance of timing and strategy of vaccination for disease control.

This article discusses the vaccination recommendations; core vaccines against Feline calicivirus, Feline herpesvirus 1, Feline leukaemia virus, Feline parvovirus and Rabies virus; noncore vaccines against Feline leukaemia virus (adult cats), Feline immunodeficiency virus, Feline Chlamydomphila felis, Bordetella bronchiseptica, virulent systemic calicivirus, and Feline coronavirus; additional consideration for pet cats; prevaccination testing; vaccine adverse effects; vaccination site recommendations; and legal considerations for vaccinating pet cats.
Publication Type
Journal article.

Accession Number
20133134835
Author
Ford, R. B.
Title
Vital vaccination series: vaccine adverse events: acute allergic angioedema.
Source
Today's Veterinary Practice; 2013. 3(1):53-55. 7 ref.
Publisher
VetMed Communications
Location of Publisher
Glen Mills
Country of Publication
USA
Abstract
The clinical signs, diagnosis, risk factors, pathogenesis and treatment of vaccination-induced acute allergic angio-oedema in cats and dogs are presented.
Publication Type
Journal article.

Accession Number
20133103607
Author
Ford, R. B.
Title
Canine vaccination guidelines: key points for veterinary practice.
Source
Publisher
VetMed Communications
Location of Publisher
Glen Mills
Country of Publication
USA
Abstract
This article provides crucial information on vaccine practices, adverse reactions and legal concerns. This discussion identifies key points that represent the most important become made regarding developing and implementing vaccination protocols. Determining protocols, classifying vaccines (core and non-core vaccines), revaccination intervals, initial vaccination, adult revaccination, not recommended vaccines, adverse reactions and legal considerations are highlighted.
Publication Type
Journal article.

Accession Number
20133079259
Author
Nishioka, S. A.; Southern, J.; Dominguez, R.; Dellepiane, N.
Title
Helping each other regulate clinical trials: a network of vaccine regulators from developing countries.
Source
Clinical Investigation; 2013. 3(2):113-117.
Publisher
Future Science Ltd
Location of Publisher
London
Country of Publication
UK
Abstract
In the early 2000s the WHO acknowledged the growing importance of national regulatory authorities from emerging countries to face the challenge of new production technologies and the emergence of vaccine manufacturers from these same regions. The establishment of the Developing Country Vaccine Regulators’ Network (DCVRN) was part of the WHO’s strategy of strengthening national regulatory authorities in vaccine-producing countries and promoting their collaboration through networking. The interaction among the DCVRN members during the network’s 8 years of existence has facilitated the development of these regulatory authorities in areas such as good clinical practice inspections and reporting of adverse events during clinical trials, and the proposal of an investigational new drug-like system for developing countries. The DCVRN has interacted, among others, with regulators and with vaccine manufacturers, and has had technical/scientific discussions on most novel candidate vaccines of interest to developing countries and also on old vaccines produced by new manufacturers. Recent administrative changes at the WHO, which have put vaccines and medicines under the same umbrella, offer challenges but also opportunities for the future of the DCVRN.
Publication Type
Journal article.

<26>
Accession Number
20133034075
Author
Kliczkowska, K.; Sapierzynski, R.
Title
Injection site-associated sarcomas in cats - review of current literature. [Polish]
Source
Publisher
Krajowa Izba Lekarsko Weterynaryjna
Location of Publisher
Warszawa
Country of Publication
Poland
Abstract
The aim of this paper was to review current literature on the injection site-associated sarcomas (ISS) in cats. They develop at site of injections of drugs or vaccines, microchip implantations and even in place of deep, surgical sutures, often many months later. Pathogenesis of these sarcomas is unclear but it is assumed that carcinogenesis is associated with prolonged inflammatory reactions. Complete surgical excision was considered to be the most effective method of treatment, but the latest investigations have shown that even in a group of patients with clean margins, 19% of recurrences were observed. According to this, combined treatment is recommended. It requires aggressive surgical treatment and adjunctive chemotherapy and possibly immunotherapy. The most frequently used chemotherapeutic - doxorubicin, have no influence on proteasome expression and function in ISS tumor cells. New, promising drugs, namely
imatinib and mastinib mesylate - tyrosine kinase inhibitors (TKI), were recently introduced but they require more clinical tests. Routine histopathological grading of ISS cells is controversial and not clinically prognostic. To minimize the risk of tumors at injection sites in cats, practitioners should follow the recommendations given by veterinary oncologists.

Publication Type
Journal article.

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Accession Number
20133038166

Author
Heayns, B.; Baugh, S.

Title
Canine vaccination - a review for veterinary nurses.

Source
Veterinary Nursing Journal; 2012. 27(4):133-136. 23 ref.

Publisher
Wiley-Blackwell

Location of Publisher
Oxford

Country of Publication
UK

Abstract
Vaccines used routinely for canine vaccination include modified live vaccines (MLVs) and killed vaccines. MLVs have higher immunogenicity than killed vaccines meaning that they are more successful at eliciting an immune response. Studies into the duration of immunity (DOI) of MLVs have helped introduce the extended revaccination interval of three years and many vaccine manufacturers have now relicensed their products for such use. Although suspected adverse reactions (SARs) to vaccination are rare, extended revaccination intervals should help reduce the number seen in practice. It is important to be aware of the possible reactions and to ensure these are reported appropriately. Vaccine failure is rare but may arise owing to poor response on the part of the individual, the presence of maternally derived antibodies (MDA) and environmental factors, such as inappropriate vaccine storage. The Vaccination Guidelines Group (VGG) recommendations cover the issue of maternally derived antibodies (MDA), extended revaccination intervals and the use of serology to determine whether a booster is needed.

Publication Type
Journal article.

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Accession Number
20123283325

Author
Lund, E.

Title
Clinical epidemiology - vaccination perspectives.

Source
Veterinary Focus; 2012. 22(2):36-37. 5 ref.

Publisher
Royal Canin Ltd (UK and Ireland)

Location of Publisher
Castle Cary

Country of Publication
UK
Abstract

The characteristics of an effective vaccination programme for the prevention of infectious and zoonotic diseases in pets and humans while outweighing the risk of adverse reactions are described.

Publication Type
Journal article.

Accession Number
20123283324

Author
Sykes, J.

Title
Vaccination regimes for dogs and cats.

Source
Veterinary Focus; 2012. 22(2):29-35. 21 ref.

Publisher
Royal Canin Ltd (UK and Ireland)

Location of Publisher
Castle Cary

Country of Publication
UK

Abstract
This article describes the different types, storage, handling, efficacy and adverse effects of vaccines for different bacterial and viral diseases in cats and dogs.

Publication Type
Journal article.

Accession Number
20123185463

Author

Title
Safety reporting in developing country vaccine clinical trials - a systematic review.

Source
Vaccine; 2012. 30(22):3255-3265. 98 ref.

Publisher
Elsevier Ltd

Location of Publisher
Oxford

Country of Publication
UK

Abstract
With more vaccines becoming available worldwide, vaccine research is on the rise in developing countries. To gain a better understanding of safety reporting from vaccine clinical research in developing countries, we conducted a systematic review in Medline and Embase (1989-2011) of published randomized clinical trials (RCTs) reporting safety outcomes with >=50% developing country participation (PROSPERO systematic review registration number: CRD42012002025). Developing country vaccine RCTs were analyzed with respect to the number of participants, age groups studied, inclusion of safety information, number of reported adverse events following immunization (AEFI), type and duration of safety follow-up, use of standardized AEFI case definitions, grading of AEFI severity, and the reporting of levels of diagnostic certainty for AEFI.
The systematic search yielded a total number of 50 randomized vaccine clinical trials investigating 12 different vaccines, most commonly rotavirus and malaria vaccines. In these trials, 94,459 AEFI were reported from 446,908 participants receiving 735,920 vaccine doses. All 50 RCTs mentioned safety outcomes with 70% using definitions for at least one AEFI. The most commonly defined AEFI was fever (27), followed by local (16) and systemic reactions (14). Logistic regression analysis revealed a positive correlation between the implementation of a fever case definition and the reporting rate for fever as an AEFI (p=0.027). Overall, 16 different definitions for fever and 7 different definitions for erythema were applied. Predefined AEFI case definitions by the Brighton Collaboration were used in only two out of 50 RCTs. The search was limited to RCTs published in English or German and may be missing studies published locally. The reported systematic review suggests room for improvement with respect to the harmonization of safety reporting from developing country vaccine clinical trials and the implementation of standardized case definitions.
Abstract
This chapter discusses the veterinary pharmacovigilance systems operations in the USA, Australia and Canada which have much in common with each other, and much in common with the approaches taken in other countries and notably those of the European Union. The three countries strive to garner adverse reaction data to monitor the safety of veterinary medicinal products (such as vaccines and ectoparasiticides), and where necessary to change the terms of approval to reduce the potential for harmful side effects. It was emphasized that the US and Australian systems also ensure that much of the data produced are available to a wider audience, including veterinarians and other health professionals.

Publication Type
Book chapter.

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<33>

Accession Number
20123104210

Author
Andersen, S. A.; Petersen, H. H.; Ersboll, A. K.; Falk-Ronne, J.; Jacobsen, S.

Title
Vaccination elicits a prominent acute phase response in horses.

Source

Publisher
Elsevier Ltd

Location of Publisher
Oxford

Country of Publication
UK

Abstract
European and American guidelines for vaccination against tetanus and influenza in horses recommend annual and annual/semi-annual vaccinations, respectively, against the two pathogens. Too-frequent vaccination may, however, have adverse effects, among other things because an inflammatory response is elicited with subsequent alterations in homeostasis. The objective of the study was to compare the acute phase response (APR) in 10 horses following administration of two different types of vaccines, namely, an inactivated Immune Stimulating COMplex (ISCOM) vaccine and a live recombinant vector vaccine. Blood was sampled before and after vaccination to measure levels of serum amyloid A (SAA), fibrinogen, white blood cell counts (WBC) and iron. Vaccination induced a prominent APR with increased WBC, elevated blood levels of SAA and fibrinogen, and decreased serum iron concentrations. The ISCOM vaccine caused significantly (P<0.05) greater SAA, fibrinogen and WBC responses than the vector vaccine. During the APR muscle catabolism and liver and kidney metabolism are altered. Also drug metabolism may change during the APR. The findings of the present study may be relevant for advising horse owners about convalescence after vaccination.

Publication Type
Journal article.

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<34>

Accession Number
20113378805

Author
Dall’Ara, P.

Title
Minor vaccine adverse reactions. [Italian]

Source
In this second paper the minor adverse reactions described in dogs and cats after vaccine administration are discussed: these reactions are even less common than the main reactions, but it is necessary to know them and not to underestimate them: type II, III and IV hypersensitivity reactions, injection-associated feline sarcomas, immunosuppression, neurological complications, hypertrophic osteodystrophy, limping syndrome, prenatal and neonatal infections, residual virulence, vaccine contamination. Finally pharmacovigilance system, that represents a useful tool to identify and consequently to reduce drug (including vaccine) adverse reactions, is described.
In this article, the authors discuss some of the results from the Suspected Adverse Reaction Surveillance Scheme (SARSS) in 2010. Included are: increase in adverse events in dogs associated with overdosing with non-steroidal antiinflammatory agents (NSAIDS), increase in reports of suspected lack of efficacy of canine parvovirus vaccines, and decrease in human adverse event reports. Information collected from pharmacovigilance reports from the Veterinary Medicine Directorate (VMD) for 2010 was also presented.

In Chile, there is no present government policy to survey and analyse adverse drug reactions (ADRs) in the field of veterinary medicine. The intent of this study is to assess, for the first time, ADR frequency in treated animals. To this purpose, a 6-month period pilot study based on WHO recommendations was conducted to monitor ADRs in cats and dogs for frequently used drugs and common labelled signs. Of a total of 149 detected ADRs, 29 (6 in cats and 23 in dogs) were notified by means of ADR report forms, while the rest was identified after reviewing patient clinical records, thus evidencing strong under-reporting problems. More than 70% of ADRs were related to antimicrobials, vaccines and tranquilizers. In dogs, there was a significant effect on ADRs' presentation when acepromazine, amoxicillin, carprofen, ivermectin, sextuple vaccine (polyvalent vaccine that confers immunity against canine distemper virus, canine parvovirus, Leptospira canicola, L. icterohemorrhagiae, canine adenovirus type 2 and canine parainfluenza virus) and phytonadione (subcutaneous injection) were administered. In the case of cats, a significant influence on ADRs was detected when acepromazine, amoxicillin or vitamin K was administered. Present results suggest
the need for a pharmacovigilance programme in veterinary medicine for timely ADR-presenting drug detection and drug safety improvement.

Publication Type
Journal article.

Author
Cousins, W. M.

Title
A quick Q&A on feline vaccine site-associated sarcomas.

Source
Veterinary Medicine; 2010. 105(12):578. 2 ref.

Publisher
Advantast Communications Inc

Abstract
The article discusses the risks and incidence of feline vaccine site-associated sarcomas from different types of vaccines; and the prevention and surgical treatment of vaccine site-associated sarcomas in cats.

Publication Type
Journal article.

Author
Roth, J. A.; Spickler, A. R.

Title
Duration of immunity induced by companion animal vaccines.

Source
Animal Health Research Reviews; 2010. 11(2):165-190. many ref.

Publisher
Cambridge University Press

Abstract
Concerns about possible adverse effects from annual vaccination have prompted the reanalysis of vaccine protocols for cats and dogs. In the last decade, several veterinary advisory groups have published protocols that recommend extended revaccination intervals for certain 'core' vaccines. In addition, practicing veterinarians have been asked to consider vaccination as an individualized medical procedure, based on an analysis of risks and benefits for each vaccine in an individual animal. The calls for extended revaccination intervals prompted considerable debate in USA and internationally. Areas of concern include the amount of evidence to support prolonged immunity from various vaccines, the risk of poor responses in individual animals and the possible effects on population immunity. This review examines how the duration of immunity (DOI) to a vaccine is established in animals and humans. It reviews factors that can affect the DOI in an individual animal, including the types of immune defenses stimulated by the pathogen, and the vaccine, host
factors such as age and the level of exposure to the pathogen. In addition, it examines DOI studies that were published for canine and feline core vaccines.

**Publication Type**
Journal article.

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**Sequential generalized likelihood ratio tests for vaccine safety evaluation.**

**Source**
Statistics in Medicine; 2010. 29(26):2698-2708. 31 ref.

**Publisher**
John Wiley & Sons

**Abstract**
The evaluation of vaccine safety involves pre-clinical animal studies, pre-licensure randomized clinical trials, and post-licensure safety studies. Sequential design and analysis are of particular interest because they allow early termination of the trial or quick detection that the vaccine exceeds a prescribed bound on the adverse event rate. After a review of the recent developments in this area, we propose a new class of sequential generalized likelihood ratio tests for evaluating adverse event rates in two-armed pre-licensure clinical trials and single-armed post-licensure studies. The proposed approach is illustrated using data from the Rotavirus Efficacy and Safety Trial. Simulation studies of the performance of the proposed approach and other methods are also given.

**Publication Type**
Journal article.

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**Vaccination of horses.**

**Source**
Norsk Veterinaertidsskrift; 2010. 122(7):508-517. 42 ref.

**Abstract**
This article gives a review of the current knowledge and practice regarding vaccination of horses in Norway. Vaccination against tetanus and equine influenza is recommended for all horses. The need for vaccination against equine herpesvirus infection, ringworm and botulism is to be considered for each horse. Adverse
reactions shall be reported to the Norwegian Medicines Agency. Ten reports have been submitted in the period 1998-2008.

Publication Type
Journal article.

<42>
Accession Number
20103249462
Author
Cormie, J.; Cormie, H.
Title
Reporting vaccine failures as suspected adverse reactions.
Source
Veterinary Record; 2010. 167(7):263-264. 2 ref.
Publisher
BMJ Publishing Group
Location of Publisher
London
Country of Publication
UK
Abstract
Two cases of repeated rabies vaccinations in 2 dogs in the UK [date not given] before the desired antibody levels were reached as a requirement for travel are presented. The results of other vaccination studies and the importance of reporting failures to respond adequately to vaccination as an adverse reaction are also discussed.
Publication Type
Correspondence.

<43>
Accession Number
20103049277
Author
Kumar, S. K.; Venkataramanan, R.; Anilkumar, R.; Sreekumar, C.; Thangavel, K.
Title
Designing effective and practical immunization programs for pups. (Special issue: Veterinary paediatrics)
Source
Intas Polivet; 2009. 10(2):326-329. 6 ref.
Publisher
Intas Pharmaceuticals Ltd
Location of Publisher
Ahmedabad
Country of Publication
India
Abstract
The article discusses the different type of vaccines, effective vaccination programme, immunization of puppies, immunization interval, immunization success rate, immunization failure, immunization during pregnancy, adverse reaction, and general guidelines for effective immunization of puppies.
Publication Type
Journal article.
Fibrosarcomas and vaccinations: fibrosarcoma in cats. [Polish]

Abstract
Tumours belonging to the "feline fibrosarcoma complex" are currently the most commonly observed tumors among cats. The etiology of feline fibrosarcoma has been a matter of great controversy due to the suggestion that vaccination injections might increase the relative risk of developing a fibrosarcoma.

Publication Type
Journal article.

Inflammatory changes in subcutaneous tissue of cats after vaccination: what role do adjuvants play? [German]

Abstract
The increased incidence of fibrosarcoma in subcutaneous tissue of cats after vaccination is thought to be due to inflammatory changes, but the pathogenesis is unclear. A study was carried out on 45 cats between 14 and 16 weeks of age, to determine the possible role of adjuvants included in the vaccines. The cats were in 3 groups of 15: A received a feline leukaemia virus vaccine without adjuvants; B were injected with a multi-component vaccine containing 3 adjuvants (ethylene maleate hydride, Neocryl-XK-62 and Emulsigen S); and C were injected with a reference combined vaccine containing aluminium hydroxide gel. The cats were injected at various sites to determine if there were any differences due to site of injection, and, as a control, cats were also injected with a saline solution. Subcutaneous tissue samples were examined at 7, 21 and 62 days after injection. Results showed that the non-adjuvant vaccines were considerably safer than the adjuvant-containing vaccines. All 3 vaccines caused early inflammatory changes in the subcutaneous tissue (day 7), and these healed more quickly in the non-adjuvant vaccines than in the other 2. It is recommended that when booster injections are given, they should be at a different site to the original vaccination in order not to exacerbate any inflammatory changes caused by the first injection.

Publication Type
Journal article.
Accession Number
20093226237
Author
Wiebe, V. J.; Howard, J. P.
Title
Pharmacologic advances in canine and feline reproduction. (Special Issue: Reproduction)
Source
Publisher
Elsevier Inc
Location of Publisher
Orlando
Country of Publication
USA
Abstract
Substantial improvements in therapeutic options for companion animal reproduction and gynecologic emergencies have been made over the last decade. New, alternative drug treatments, with fewer side effects and improved efficacy, are available. This has widened the spectrum of therapeutic possibilities for diseases that were previously treated only by surgical intervention. New drugs are available for estrus induction and pregnancy termination, as well as for the treatment of pyometra. This review summarizes the pharmacology and toxicology of reproductive agents currently in use for contraception, pyometra, dystocia, eclampsia, premature labor, agalactia, mastitis, metritis, and prostatic disorders, and compares their efficacy and safety with newer agents. Drug use and exposure during pregnancy and lactation, and subsequent risks to the fetuses, are also explored, with emphasis on antimicrobials, antifungals, anthelminthics, anesthetics, and vaccinations.
Publication Type
Journal article.

Accession Number
20093190398
Author
Horzinek, M. C.; Thiry, E.
Title
Vaccines and vaccination: the principles and the polemics.
Source
Publisher
Elsevier
Location of Publisher
Amsterdam
Country of Publication
Netherlands
Abstract
Background: The European Advisory Board on Cat Diseases (ABCD) is a body of experts that sees its task as bringing feline health issues to the forefront of companion animal practice. By way of an introduction to this special 'clinical practice' issue of the Journal of Feline Medicine and Surgery (JFMS), this article attempts a 'helicopter view' of practical, or applied, immunology. It should be viewed as a 'light primer' to vaccines and vaccination, and is very general in nature. It is not intended to replace authoritative immunology textbooks, which abound both in the veterinary and medical fields, and the level of detail in which may discourage the casual reader. By design, therefore, this article is not referenced. Underpinning issues: The immune response (be it after vaccination or infection) is discussed, as are the issues of duration of immunity, and vaccine safety and efficacy, tests predicting protection, population ('herd') immunity, and the types of vaccine
developed and/or available (live, killed, chimaeric, DNA-only products). Practical relevance: With day-to-day veterinary practice in mind, practical issues discussed include kitten vaccination, the definition of 'core' versus 'non-core' products, passive immunisation, and prevention strategies in populations and crowded cat communities. Adverse reactions, and factors affecting vaccine efficacy, safety and performance are also summarised.

Publication Type
Journal article.

<48>
Accession Number
20093179707
Author
Title
Vaccine adverse event monitoring systems across the European Union countries: time for unifying efforts.
Source
Vaccine; 2009. 27(25/26):3376-3384. 13 ref.
Publisher
Elsevier
Location of Publisher
Amsterdam
Country of Publication
Netherlands
Abstract
A survey conducted among 26 European Countries within the Vaccine European New Integrated Collaboration Effort (VENICE) project assessed the status of organization in prevention and management of adverse events following immunization (AEFI) and level of interconnection, with the aim at individuating points of strength and weakness. The emerging picture is for a strong political commitment to control AEFIs in Member States (MS), but with consistent heterogeneity in procedures, regulations and capacity of systems to collect, analyze and use data, although with great potentialities. Suggestions are posed by authors to promote actions for unifying strategies and policies among MS.
Publication Type
Journal article
Conference paper.

<49>
Accession Number
20093092903
Author
Roth, J. A.
Title
Considerations in vaccine safety and efficacy.
Source
Publisher
The North American Veterinary Conference
Location of Publisher
Gainesville
Country of Publication
USA
Abstract
Mild local and systemic reactions to vaccines are to be expected as a natural consequence of vigorously stimulating the immune system. Dramatic adverse reactions to vaccines are occasionally due to mistakes during the production or handling of vaccines. More often, they are due to not following label instructions, particularly the restriction to only use vaccines in healthy animals. Vaccine failure to protect from disease is usually due to problems with either client education or compliance with good animal management practices. It is important for clients to understand the proper timing and method of vaccine administration, what to realistically expect for vaccine efficacy, and the importance of minimizing immunosuppressive factors and exposure to high doses of infectious agents in vaccinated animals. Veterinary vaccines have produced dramatic benefits in terms of animal health, human health, and efficiency of food production. Advances in research and the accumulating experience with vaccines reactions are leading to safer and more effective vaccines. Proper usage of vaccines and adherence to good management practices will continue to be essential to achieve maximal vaccine safety and efficacy.
Any risk assessment involves a number of steps. First, the risk manager, in close liaison with the risk assessor, should identify the question of interest. Then, the hazards associated with each risk question should be identified. Only then can the risks themselves be assessed. Several questions may reasonably be asked about the risk associated with avian influenza vaccines and their use. Some apply to any vaccine, while others are specific to avian influenza. Risks may occur during manufacture and during use. Some concern the vaccines themselves, while others address the effect of failure on disease control. The hazards associated with each risk question are then identified. These may be technical errors in design, development or production, such as contamination or failure to inactivate appropriately. They may relate to the biological properties of the pathogens themselves displayed during manufacture or use, for example, reversion to virulence, shedding or not being the right strain for the subsequent challenge. Following a consideration of risks and hazards, the information needed and an outline of the steps necessary to assess the risk is summarized, for an illustrative risk question using, as an example, the risks associated with the use of vaccines in the field. A brief consideration of the differences between qualitative and quantitative risk assessments is also included, and the potential effects of uncertainty and variability on the results are discussed.

This paper discusses the latest advances in feline immunization, including adverse reactions to vaccines, and adjuvant research.
Veterinary technicians should have an understanding of how vaccines work and diseases for which cattle are commonly vaccinated. When the immune system responds to stimulation by an antigen contained in a vaccine, the animal actively acquires immunity. Attenuated (modified-live) or killed viruses or bacteria are antigenic; certain pieces (subunits) of bacteria are also antigenic. Vaccines must be handled with care, as sunlight, heat and disinfectants will decrease efficacy of vaccines. Animals which are malnourished, poorly housed, or otherwise under stress will have a decreased benefit from vaccination, as their immune systems will not properly respond. Vaccines in cattle are most commonly used to prevent respiratory, reproductive and clostridial diseases. Tetanus and blackleg are clostridial diseases. IBR, BVD, PI3 and BRSV are viral respiratory and reproductive diseases which are commonly combined in one vaccine; the IBR and BVD components may be modified-live or killed. Brucellosis is not a common disease, but vaccination of cattle against brucellosis, a zoonotic reproductive disease ("Bang's disease") greatly facilitates interstate shipment. Products are available to vaccinate cattle against just about every infectious disease they can get, but not all available vaccines have proven efficacy. Decisions regarding vaccines to use on a particular farm should be based on the risks, management and unique needs of the farm. When properly selected, administered and used in conjunction with sound management practices, vaccination is a valuable tool to help maintain herd health.
diarrhoea and ataxia. A few dogs showed severe anaphylactic shocks. Most reactions are probably due to allergies. The patterns of the adverse reactions reported for Eurican DHPPi2 vet differed in some respects from those reported for the other vaccines. Thus, for Eurican DHPPi2 vet the reactions usually appeared more rapidly after the vaccinations (within a few minutes) and they usually also disappeared more rapidly (within an hour). Most of these dogs showed anaphylactic reactions with marked drop in blood pressure and pale mucous membranes. There were three reports of lack of efficacy. Two of these concern dogs which became ill and died of infectious hepatitis, despite previous vaccinations. The third dog, which had been vaccinated against parvovirus infection, became ill with this disease, but recovered. There were three reports of typical “pinscher-reactions”, which can be seen in German pinschers and also in miniature pinschers. These reactions appear a week or more after the first vaccination with a vaccine containing a distemper component (at 12-13 weeks) and are primarily characterized by neurological symptoms, which vary from mild shakings to severe epileptiform seizures.

Publication Type
Journal Article.

<55>
Accession Number
20073287583
Author
Wiedermann-Schmidt, U.; Maurer, W.
Title
Relevance of additives and adjuvants in vaccines for allergic and toxic side effects.
Source
Publisher
Springer-Verlag
Location of Publisher
Wien
Country of Publication
Austria
Abstract
Side effects of vaccinations can have different causes. Substances admixed to vaccines may produce allergic or toxic reactions. The significance and importance of causal associations is discussed in this paper. A table is added listing the most important substances in vaccines, such as inactivating substances, preservatives, stabilizers, adjuvants, and residual substances derived from production processes. Among possible allergic reactions, type I reactions, as the most undesirable ones, should be avoided. In this respect, vaccines against yellow fever are the most important ones. With respect to antibiotics, it should be stressed that penicillin and cephalosporines are not contained in any of the vaccines. The significance of side effects caused by ethylmercury as a preservative (thiomersal) is extendedly discussed in the literature. Allergy against this substance is common among the population, manifested as type IV reactions following superficial antigen administration. It has been shown that deep intramuscular injection of thiomersal-containing vaccines may be administered even to persons who are allergic to this substance without risk of side effects. Regarding toxic side effects after application of thiomersal, several studies have disproved a causal relation between thiomersal exposure and developmental disorders. Nevertheless, the general recommendation is to use thiomersal-free vaccines, unless no other preparations are available. In these cases risk of morbidity and mortality from the vaccine-preventable diseases outweigh by far any theoretical risk from ethylmercury.

Publication Type
Journal article.

<55>
Accession Number
Administration of two doses of multicomponent vaccine to pups and kittens between 8 and 16 weeks of age has become a standard and important part of veterinary healthcare for this susceptible neonatal population. Currently available vaccine formulations conform to high standards of quality, safety and efficacy, but there remains a very small risk of adverse effect following vaccination. Quantifying this risk is extremely difficult and there are few meaningful data available. It would seem, however, that there is a higher prevalence of suspected adverse reactions (SARs) following vaccination in the neonatal period than in adult animals. The range of reported adverse reactions in neonates is broad, and includes: suspected lack of efficacy, mild nonspecific and transient illness post-vaccination, and the development of hypersensitivity or autoimmune reactions. The most common reactions in both species are the various clinical manifestations of type I hypersensitivity. These events might relate to the induction of IgE antibody specific for extraneous protein incorporated within vaccines, in particular bovine serum albumin. That such reactions are most prevalent in small breed dogs, that also make the highest serological responses to vaccination, suggests a case for the formulation of low-dose products for miniature breeds. At least a proportion of neonatal vaccine SARs are related to the use of potent immunological adjuvants in certain products. A recent study in neonatal kittens has confirmed that non-adjuvanted vaccine induces significantly less local vaccine site inflammation than comparable adjuvanted products. The low risk of vaccine SARs in early life may therefore be further reduced by formulating non-adjuvanted vaccines with reduced content of extraneous protein, and by carefully considering the optimum vaccination protocol for any individual animal.

A broad spectrum of adverse events is reported following human vaccination but such reactions are considered to be relatively rare. A variety of mechanisms has been proposed to account for such adverse events. These most commonly relate to the actual process of vaccination and range from the vagal reaction...
associated with anxiety about needle injection, to use of an inappropriate site of administration, or infection of the healthcare worker by accidental injection during needle-capping. Other adverse events directly associated with the vaccine include reversion to virulence of attenuated vaccine strains of organisms, or contamination of the vaccine product. Adverse events may involve immune-mediated phenomena triggered by exposure to the microbial or other components of vaccines. These include: classical IgE-mediated type I hypersensitivity reactions, and immune-complex type III hypersensitivity (Arthus) reactions. Such reactions may be localized or systemic in nature. A variety of autoimmune reactions has been suggested to be triggered by vaccination, but in general the evidence for such associations remains largely anecdotal. Finally, many reported adverse events are simply chance instances of infection or disease onset around the time of vaccination and are not causally associated with administration of vaccine.

Publication Type
Journal article

Accession Number
20073180520

Author
Moore, G. E.; DeSantis-Kerr, A. C.; Guptill, L. F.; Glickman, N. W.; Lewis, H. B.; Glickman, L. T.

Title
Adverse events after vaccine administration in cats: 2,560 cases (2002-2005).

Source

Publisher
American Veterinary Medical Association

Location of Publisher
Schaumburg

Country of Publication
USA

Abstract
Objective - To determine the incidence of vaccine-associated adverse events (VAAEs) diagnosed within 30 days of vaccination in cats and characterize risk factors for their occurrence. Design - Retrospective cohort study. Animals - 496,189 cats vaccinated at 329 hospitals. Procedures - Electronic records were searched for VAAEs that occurred after vaccine administration classified by practitioners as nonspecific vaccine reaction, allergic reaction, urticaria, shock, or anaphylaxis. Clinical signs and treatments were reviewed. The association between potential risk factors and a VAAE occurrence was estimated via multivariate logistic regression. Results - 2,560 VAAEs were associated with administration of 1,258,712 doses of vaccine to 496,189 cats (51.6 VAAEs/10,000 cats vaccinated). The risk of a VAAE significantly increased as the number of vaccines administered per office visit increased. Risk was greatest for cats approximately 1 year old; overall risk was greater for neutered versus sexually intact cats. Lethargy with or without fever was the most commonly diagnosed VAAE. No localized reactions recorded in the 30-day period were subsequently diagnosed as neoplasia when followed for 1 to 2 years. Conclusions and Clinical Relevance - Although overall VAAE rates were low, young adult neutered cats that received multiple vaccines per office visit were at the greatest risk of a VAAE within 30 days after vaccination. Veterinarians should incorporate these findings into risk communications and limit the number of vaccinations administered concurrently to cats.

Publication Type
Journal article.
Morton, D. B.
Title Vaccines and animal welfare. (Animal vaccination part 1: development, production and use of vaccines.)
Publisher Office International des Epizooties
Location of Publisher Paris
Country of Publication France
Abstract Vaccination promotes animal welfare by protecting animal health, but it also has other welfare benefits, e.g. recent investigations have looked at the potential of vaccines in immunoneutering such as immunocastration - a humane alternative to the painful traditional methods. Similarly, vaccination can be used during disease outbreaks as a viable alternative to stamping-out, thus avoiding the welfare problems that on-farm mass slaughter can cause. Protecting animal health through vaccination leads to improved animal welfare, and maintaining good welfare ensures that animals can respond successfully to vaccination (as poor welfare can lead to immunosuppression, which can affect the response to vaccination). It is clear that vaccination has tremendous advantages for animal welfare and although the possible side effects of vaccination can have a negative effect on the welfare of some individual animals, the harm caused by these unwanted effects must be weighed against the undoubted benefits for groups of animals.
Publication Type Journal article.

Cruz Carillo, A.
Title Characterization of adverse reactions to veterinary medicaments in canines: a preliminary study. [Spanish]
Publisher Universidad de Ciencias Aplicadas y Ambiemtales
Location of Publisher Bogata
Country of Publication Colombia
Abstract Due to the fact that in Colombia neither a program nor a center for monitoring adverse reactions to drugs (ARD) in animals exist, the aim of this work was to carry out a global characterization of the state of ARD in dogs in veterinary clinics at Tunja and Bogota. This work is the first of a group of proposals which have been constructed in order to support the development of a center for drug surveillance. Data were collected personally at selected veterinary clinics by filling out a questionnaire. According to the results, 40 ARD's were reported, characterized by allergic reactions, as well as digestive, neurological, cardiovascular and dermatological alterations. The groups of pharmaceuticals associated with these effects comprised vaccines, antibacterials, antiparasitics, NSAID's, vitamins and CMS depressors. With this study it was concluded that ARD's are an important group of pathologies in canines, worthwhile to pay attention to with higher responsibility. Likewise, a lack of attention was found in recording and notification of ARD by the veterinarians. The importance to create a center for surveillance of veterinary drugs in Colombia is ratified.
Publication Type Journal Article.
Accession Number
20073011589
Author
O’Connor, E.; Murphy, D.
Title
Suspected adverse reactions to veterinary medicinal products, 2005.
Source
Publisher
Irish Veterinary Association
Location of Publisher
Dublin
Country of Publication
Irish Republic
Abstract
This article reports 84 cases of suspected adverse reactions to veterinary drugs and vaccines in humans (4), dogs (25), cattle (21), horses (11), sheep (8), cats (7), salmon (3), pigs (2) and goats (1) in the Irish Republic recorded during 1 January-31 December 2005.
Publication Type
Journal article.

Accession Number
20063193503
Author
Kirpensteijn, J.
Title
Feline injection site-associated sarcoma: is it a reason to critically evaluate our vaccination policies? (Special issue: Canine and feline vaccination - a scientific re-appraisal.)
Source
Veterinary Microbiology; 2006. 117(1):59-65. 47 ref.
Publisher
Elsevier
Location of Publisher
Amsterdam
Country of Publication
Netherlands
Abstract
Feline injection site-associated sarcoma (FISAS) or vaccination-associated sarcoma is a serious problem in cats because of the ethical and therapeutic consequences associated with the disease. The exact aetiology of FISAS is unclear; therefore, instituting preventative measures such as delaying or discontinuing vaccination schedules is questionable. This paper will give insights into the disease process, will attempt to answer the question, "what causes FISAS?", and will discuss preventative measures to decrease the chance of occurrence. Tumours are in general uncommon in the cat, however, malignant tumours, such as sarcomas, occur relatively frequently. FISAS have stimulated interest because of their reported linkage to certain types of vaccine. FISASs are reported to have an incidence of 1-10 per 10,000 cats and often appear in conjunction with a traumatic incident (such as a vaccination). The tumour displays an extreme malignant biological behaviour, both being locally aggressive and metastasising in 25-70% of the cases. Although the pathology still remains unclear, an exaggerated inflammatory/granulomatous response seems to be the predisposing factor in the transformation to FISAS. A multi-step carcinogenesis model, including genetic, iatrogenic and local factors seems to be the most plausible explanation for the occurrence of the tumour.
Multi-modal therapy, based on aggressive surgical removal of the tumour in combination with radiation and/or chemotherapy, is usually recommended but randomised clinical studies have not yet been performed to prove the efficacy of any of the modalities. The question of whether FISAS can be prevented by not injecting irritant products remains unanswered. No specific brands of vaccine, manufacturers or factors associated with vaccine administration have been significantly associated with FISAS in a multi-institutional and epidemiological study. Control and evaluation measures as recommended by the US-based taskforce include determination of risk groups, extending re-vaccination intervals, the use of single component products and the use of consistent, predetermined sites for vaccination.

Publication Type
Journal article.

Accession Number 20063193502
Author Day, M. J.
Title Vaccine side effects: fact and fiction. (Special issue: Canine and feline vaccination - a scientific reappraisal.)
Source Veterinary Microbiology; 2006. 117(1):51-58. 50 ref.
Publisher Elsevier
Location of Publisher Amsterdam
Country of Publication Netherlands
Abstract
The debate over adverse reactions associated with companion animal vaccination has considerably exercised the veterinary profession internationally over the past decade. A range of suspected adverse reactions to vaccines is reported including the onset of inflammatory, allergic, autoimmune or neoplastic diseases. Lack of efficacy, interference with diagnostic testing and other occasional suspected product-related issues are also reported. Available data suggest that the overall prevalence of true adverse reactions is exceedingly low and that vaccination does not significantly contribute to ill-health in companion animals. There is increasing public interest in vaccination issues with transfer of focus from publicity over human vaccine side effects to those perceived to occur in animals. We must not lose sight of the fact that vaccination is a safe procedure that has impacted significantly on infectious disease control. Reduced population uptake of vaccination leads to re-emergence of disease in both humans and animals. Nevertheless, there have recently been a series of practical recommendations produced to ensure reduced ‘vaccine load’ on our companion animals and vaccine manufacturers are moving towards developing non-adjuvanted products with an extended duration of immunity. These measures will further reduce the very small current risk of any adverse consequences to vaccination in our pet population.
Publication Type
Journal article.

Accession Number 20063193493
Author Rottier, P. J. M.; Sutton, D.
Title
Special issue: Canine and feline vaccination - a scientific reappraisal. (Special issue: Canine and feline vaccination - a scientific re-appraisal.)

Source

Publisher
Elsevier

Location of Publisher
Amsterdam

Country of Publication
Netherlands

Abstract
This supplement is comprised of 16 papers presented at a 2-day international scientific symposium on canine and feline vaccination. The papers are grouped into 4 main topics: vaccine efficacy and disease prevention; new developments; vaccine safety; and current vaccination issues. The side effects of some vaccines and the regulations regarding duration of immunity are discussed in several papers. Three papers emphasize the prevention of canine parvovirus, feline calcivirus and canine leptospirosis through vaccination.

Publication Type
Journal issue.

Accession Number
20063175351

Title
2006 AAHA Canine Vaccine Guidelines.

Source

Publisher
American Animal Hospital Association

Location of Publisher
Denver

Country of Publication
USA

Abstract
In 2005, AAHA's Canine Vaccine Task Force met to reexamine and revise guidelines on the use of vaccines in dogs. The results of the Task Force's work are summarized and tabulated in this article and are published in their entirety on the AAHA website (www.aahanet.org). The 2006 AAHA Canine Vaccine Guidelines contain information on new technological developments in vaccines, an introduction to conditionally licensed vaccines, and detailed recommendations on the use of available vaccines. Perhaps the most noteworthy addition to the guidelines is a separate set of recommendations created for shelter facilities. Vaccines are classified as core (universally recommended), noncore (optional), or not recommended. The Task Force recognizes that vaccination decisions must always be made on an individual basis, based on risk and lifestyle factors.

Publication Type
Journal article.

Accession Number
20063120174

Author
Davis-Wurzler, G. M.

Title
Current vaccination strategies in puppies and kittens. (Pediatrics)
Motivation in writing this article stems from many things: a lack of time spent in the veterinary curriculum discussing vaccines, a growing concern (by the general public and the veterinary community) regarding adverse reactions associated with vaccines, and a desire to prevent a recurrence of preventable infectious diseases resulting from a fear-driven cessation of vaccine administration. The objectives of this article are to present a basic review of immunology as related to vaccines, to discuss general guidelines for paediatric vaccines in canine and feline patients, and to offer suggestions as to how we can most positively influence our patients’ health from the first visit.

Vaccines - what are the future options for health and disease control?

Vaccines offer pig producers a cost-effective way to protect their animals against the onset and progression of infectious diseases. The future development of animal vaccines will centre principally on the adoption of technologies that better address epidemic and pandemic diseases confronting the human race. Safer and more effective vaccines will stem from a better understanding of the biological mechanisms pathogens use to cause disease and how the immune system responds to these. In addition, the complex immune system that protects the body must be targeted correctly to ensure that the correct protective defensive response is activated. Vaccines differ in the way they target pathogens, and also in their mode of action and the immune response they elicit. Protection against bacterial pathogens has usually been achieved by targeting virulence factors such as adhesion or toxins using either whole cell, subunit, recombinant or toxoid vaccines. Whole cell vaccines (WCV), both inactivated and live, have proven they offer a low cost and effective means of preventing respiratory, enteric and systemic infections with minimal side effects. A distinct advantage of WCV is that they express many antigens (not all protective), some of which have not even been recognised.

Mucosal vaccination offers several benefits over the parenteral route, including ease of administration. While vaccines delivered orally or nasally have the potential to stimulate both mucosal and systemic immunity, they must also overcome the natural defence mechanisms of the body. Mucosal delivery of live vectors, especially those expressing multiple foreign surface antigens that can infect host cells, provide the greatest promise. It is fairly well established that soluble antigens given by the mucosal route are poorly immunogenic. Accordingly, strong mucosal adjuvants and improved delivery systems need to be considered.
to overcome the need for live vaccines, the dilution effect and vaccine degradation. Oral delivery of inactivated whole cell/purified proteins/DNA vaccines may be a future option not only for enteric pathogens but also for respiratory pathogens, particularly as the M cells of the mucosal lymphoid tissue are highly efficient in the uptake of particulate antigens and microparticles. Technologies that better define protective antigens the expression of protective antigens in live vectors, more effective adjuvants and delivery systems, mucosal vaccines that target specific lymphoid tissue, and the co-administration of animals with more than one antigen, will provide the industry with the enhanced products of the future. In addition to vaccine development, scientists and veterinarians alike must continue to undertake concurrent investigations into disease management and treatment. Above all, vaccines improve animal welfare and reduce the cost of production through improved growth rates and feed conversion efficiency.

Publication Type
Book chapter

Accession Number
20063103609

Author

Title
Results of a phase II clinical trial on the use of ifosfamide for treatment of cats with vaccine-associated sarcomas.

Source
American Journal of Veterinary Research; 2006. 67(3):517-523. 37 ref.

Publisher
American Veterinary Medical Association

Location of Publisher
Schaumburg

Country of Publication
USA

Abstract
Objective - To determine clinical activity and toxic effects of ifosfamide when used to treat cats with vaccine-associated sarcoma (VAS). Animals - 27 cats with a nonresectable, recurrent, or metastatic VAS. Procedure - Each cat received ifosfamide (900 mg/m2 of body surface area) as an IV infusion during a 30-minute period. Diuresis by infusion of saline (0.9% NaCl) solution and administration of mesna were used to prevent urothelial toxicosis. Treatments were administered every 3 weeks, and tumor response was assessed after the second treatment. All ifosfamide-associated toxic effects were graded in accordance with predetermined criteria. Results - 61 treatments were administered to 27 cats (median, 2 treatments/cat; range, 1 to 4 treatments/cat). After ifosfamide treatment, 1 cat had a complete response and 10 had partial responses for an overall response rate of 11 of 27 (41%; 95% confidence interval [CI], 25% to 59%). Responses lasted from 21 to 133 days (median, 70 days; 95% CI, 60 to 113 days). The acute dose-limiting toxicosis was neutropenia, which was detected 5 to 28 days (median, 7 days) after treatment. Median nadir neutrophil count was 1,600 cells/ micro L (range, 200 to 5,382 cells/ micro L). Nine (33%) cats had adverse gastrointestinal effects (primarily salivation during the ifosfamide infusion and inappetence after treatment). Two cats were euthanatized because of severe nephrotoxicosis, and 1 cat developed pulmonary edema during diuresis. Conclusions and Clinical Relevance - Ifosfamide has antitumor activity against VAS in cats and is tolerated well by most cats. Ifosfamide should be evaluated as an adjuvant treatment for cats with VAS.

Publication Type
Journal article.
Adverse drug reactions after intramuscular injection in horses - a veterinarians' inquiry evaluation.

Accession Number
20063080779

Author
Ohnesorge, B.; Pfalzgraf, S.; Rohn, K.; Neuhaus, J.; Deegen, E.

Title
Adverse drug reactions after intramuscular injection in horses - a veterinarians' inquiry evaluation.

Source
Pferdeheilkunde; 2006. 22(3):337-346. many ref.

Publisher
Hippiatrika Verlagsgesellschaft mbH

Location of Publisher
Stuttgart

Country of Publication
Germany

Abstract
The definition and kind of adverse drug reactions following intramuscular (i.m.) injection were determined by conducting a field study among veterinarians. 1439 inquiry sheets were sent randomly, requesting them to describe observed adverse drug reactions. 474 completed questionnaires were sent back (32.9%). A total of 429 veterinarians (performing about 765 000 i.m. injections per year) described 0.045% severe adverse drug reactions, from which 0.0015% lethal reactions were included. 446 veterinarians (performing about 790 000 i.m. injections per year) remarked on low reactions (2.2%). Among these reactions, oedema was frequently observed (1.56%), whereas urticaria was rarely observed (0.09%). The number of severe adverse drug reactions increased with the increasing number of i.m. injections/year which veterinarians performed. 47% of the injections were administered in the neck muscles, 33% in the breast muscles and only 14% in the long ischium muscle. Significantly after i.m. injection into the breast muscles, most of adverse drug reactions developed. After clipping the hair, lower adverse drug reactions were noticed (p<=0.001). Cleaning the injection site led to a decrease of low and severe adverse drug reactions (p<=0.001). Multiple uses of sterile syringes and cannulae caused low adverse drug reactions more frequently (p<=0.001). Most of the severe local reactions like oedema, abscesses, phlegmones and apraxia were observed after i.m. administration of vaccines and antibiotics. About 50% of systemic adverse drug reactions (e.g. trembling, wobbling, sweating, death) occurred after administration of antibiotics and 20% after i.m. administration of vaccines and vitamins, respectively. Antibiotics containing benzylpenicillin led to most of the lethal reactions. In accomplishing an intramuscular injection, veterinarians should take care of the adequate preparation of the injection site, informing the owners in case of benzylpenicillin injection and checking the need for application of doubtful drugs thoroughly.

Publication Type
Journal article.
Lexington  
Country of Publication  
USA  
Abstract  
Veterinarians need to think critically about vaccine recommendations and brand choices. Many factors should be weighed, including likelihood of exposure, and severity of each infectious disease, efficacy of each vaccine, potential side effects, and implications for future disease diagnosis. Data on these characteristics should be provided by the manufacturers for all new vaccines. Vaccine selections should be evaluated annually and reviewed with clients to gain maximum protective benefits.

Publication Type  
Book chapter  
Conference paper.

<70>  
Accession Number  
20053223636  
Author  
Title  
Adverse events diagnosed within three days of vaccine administration in dogs.  
Source  
Publisher  
American Veterinary Medical Association  
Location of Publisher  
Schaumburg  
Country of Publication  
USA  
Abstract  
Objective - To determine incidence rates and potential risk factors for vaccine-associated adverse events (VAAEs) diagnosed within 3 days of administration in dogs. Design - Retrospective cohort study. Animals - 1,226,159 dogs vaccinated at 360 veterinary hospitals. Procedure - Electronic records from January 1, 2002, through December 31, 2003, were searched for possible VAAEs (nonspecific vaccine reaction, allergic reaction, urticaria, or anaphylaxis) diagnosed within 3 days of vaccine administration. Information included age, weight, sex, neuter status, and breed. Specific clinical signs and treatments were reviewed in a random sample of 400 affected dogs. The association between potential risk factors and a VAAE was estimated by use of multivariate logistic regression. Results - 4,678 adverse events (38.2/10,000 dogs vaccinated) were associated with administration of 3,439,576 doses of vaccine to 1,226,159 dogs. The VAAE rate decreased significantly as body weight increased. Risk was 27% to 38% greater for neutered versus sexually intact dogs and 35% to 64% greater for dogs approximately 1 to 3 years old versus 2 to 9 months old. The risk of a VAAE significantly increased as the number of vaccine doses administered per office visit increased; each additional vaccine significantly increased risk of an adverse event by 27% in dogs <=10 kg (22 lb) and 12% in dogs >10 kg. Conclusions and Clinical Relevance - Young adult small-breed neutered dogs that received multiple vaccines per office visit were at greatest risk of a VAAE within 72 hours after vaccination. These factors should be considered in risk assessment and risk communication with clients regarding vaccination.

Publication Type  
Journal article.

<73>  
Accession Number  
20053012728  
Author  
Title
Suspected allergic reactions after vaccination in 85 dogs in Japan.
Source
Veterinary Record; 2005. 156(3):87-88. 9 ref.
Publisher
British Veterinary Association
Location of Publisher
London
Country of Publication
UK
Abstract
Information on 85 dogs that showed allergic reactions within 24 hours after non-rabies vaccine injections was collected from 40 private small animal veterinary practitioners in Japan between January 2001 and July 2002. The information on the 85 dogs comprised their history, the types of vaccine used, history of previous vaccination, clinical signs and time of onset of clinical signs after vaccination. The dogs were classified into three groups based on their clinical signs. Group 1 consisted of dogs with predominantly cardiovascular and/or respiratory signs, which include circulatory collapse, cyanosis, bradycardia, hypotension, hypothermia, dyspnoea and/or tachypnoea. Concurrent gastrointestinal signs, such as vomiting and diarrhoea, were also observed. Group 2 comprised those with predominantly dermatological signs, like facial oedema, erythema, pruritus and/or urticaria. Group 3 comprised of dogs showing cardiovascular/respiratory and dermatological signs simultaneously. The following four types of vaccines are commercially available in Japan; a monovalent live parvovirus vaccine (type 1); monovalent inactivated parvovirus or Leptospira vaccines (type 2); combined live vaccines composed of canine parvovirus, distemper virus, adenovirus type 2 and/or parainfluenza virus (type 3); and combined live and inactivated vaccines composed of live canine parvovirus, distemper virus, adenovirus type 2, parainfluenza virus and/or coronavirus vaccines, and inactivated coronavirus and/or Leptospira vaccines (type 4). Of the 85 dogs studied, clinical signs of suspected allergic reactions were observed in 2, 28 and 53 recipients of types 1, 3 and 4 vaccines. No dogs had been injected with type 2 vaccine. It was not possible to calculate the incidence of suspected allergic reactions because the total numbers of dogs that were vaccinated at the 40 veterinary practices were not obtained. Further studies, including the gathering of such information, will be necessary to investigate any breed predisposition for allergic reactions and to determine which vaccines are more likely to provoke an allergic response. In addition, it is necessary to identify the causative allergen(s) in canine vaccines in order to develop safer vaccines which do not provoke allergic reactions.
Publication Type
Journal article.

<74>
Accession Number
20043210883
Author
Warner, T.
Title
A review of current international vaccination trends for dogs and cats. Are we up to date and in-line with contemporary thinking?
Source
Publisher
Israel Veterinary Medical Association
Location of Publisher
Raanana
Country of Publication
Israel
Abstract
This review presents some highlights of current knowledge regarding the issue of annual vaccination in dogs and cats and addresses whether there is a need for Israeli veterinarians to follow international trends and to implement vaccination policies conforming to contemporary scientific knowledge. An important driving force to reexamine existing veterinary annual vaccination protocols was the serious concern regarding adverse effects caused by vaccination. The list of possible adverse effects is presented and discussed. Methods concerning the manner in which persistence of immunity after vaccination is measured are discussed. The results of two serological studies, in which the protection of dogs and cats to major diseases preventable by vaccination are presented. The central finding of both of these studies discussed here is that vaccination induces a serological response in dogs and cats that lasts for extended periods of time. Published guidelines and recommendations for both canine and feline vaccination schedules are reviewed. It was concluded that annual vaccination may not be beneficial and in some cases may even be deleterious. The veterinarian is encouraged and recommended to determine what is best for the individual patient and to tailor a vaccination program for this purpose.

Publication Type
Journal article.
A working group, set up in Norway in 2003, is conducting a re-evaluation of the vaccination programmes used routinely for dogs and cats. Under the current system, animals are given polyvalent vaccines that include protection against diseases that are found only rarely in the country. It is considered that veterinarians should not rely only on information supplied to them by the producers of the vaccines, but should tailor their programme according to a risk assessment of the diseases that the animals may encounter.

Publication Type
Journal article.

Vaccine adjuvants are chemicals, microbial components, or mammalian proteins that enhance the immune response to vaccine antigens. Interest in reducing vaccine-related adverse effects and inducing specific types of immunity has led to the development of numerous new adjuvants. Adjuvants in development or in experimental and commercial vaccines include aluminum salts (alum), oil emulsions, saponins, immune-stimulating complexes (ISCOMs), liposomes, microparticles, nonionic block copolymers, derivatized polysaccharides, cytokines, and a wide variety of bacterial derivatives. The mechanisms of action of these diverse compounds vary, as does their induction of cell-mediated and antibody responses. Factors influencing the selection of an adjuvant include animal species, specific pathogen, vaccine antigen, route of immunization, and type of immunity needed.

Publication Type
Journal article.
Adverse reactions to vaccines were examined in 311 canine cases reported to the Ministry of Agriculture, Forestry and Fisheries in Japan during the period of 6 years from April of 1994 to March of 2000, and classified according to their clinical symptoms. There were 27 cases of adverse reactions to rabies virus vaccines. Gastrointestinal symptoms were the most frequently observed (26%), followed by respiratory and/or cardiovascular symptoms (22%) and dermatologic symptoms (11%). There were 284 cases of adverse reactions to non-rabies monovalent vaccines and mixed vaccines. Dermatologic symptoms were the most frequently observed (53%), followed by gastrointestinal symptoms (16%) and respiratory and/or cardiovascular symptoms (14%). Of the total 311 cases, 11 (3.5%) died of adverse reactions to vaccines.