Blood transfusions – the risks and benefits

Database: CAB Abstracts <1990 to 2014 Week 21>
Search Strategy:

1  (advers* or risk* or problem* or danger* or benefit*).mp. [mp=abstract, title, original title, broad terms, heading words]
2  (LL886 or LL600 or LL070 or LL884).cw.
3  ("blood transfusion" or (blood and transfus*) or xenotransfus*).mp. [mp=abstract, title, original title, broad terms, heading words]
4  1 and 2 and 3 (2 or 3)

Accession Number
20143127530
Author
Mesa-Sanchez, I.; Ruiz Gopegui-Fernandez, R. de; Granados-Machuca, M. M.; Galan-Rodriguez, A.
Title
Prevalence of dog erythrocyte antigen 1.1 in galgos (Spanish greyhounds).
Source
Veterinary Record; 2014. 174(14):351.
Publisher
BMJ Publishing Group
Location of Publisher
London
Country of Publication
UK
Abstract
Dog erythrocyte antigen (DEA) 1.1 is the most clinically important blood group in dogs, as negative recipients for this group may develop a life-threatening acute haemolytic transfusion reaction if they receive several DEA 1.1 positive blood transfusions. Due to their physical features, galgos are frequently used as blood donors in clinical practice, however, there are no published data regarding the prevalence of DEA 1.1 in this breed. Expression of DEA 1.1 was determined in 118 galgos and 88 dogs of other breeds being screened as potential blood donors, using an immunochromatographic cartridge typing kit (Quick Test DEA 1.1, Alvedia, Lyon, France). Of the total dogs, 53.4 per cent (110/206) were positive for DEA 1.1. The prevalence of DEA 1.1 positive blood among our population of galgos and other-breed dogs were 51.7 per cent (61/118) and 55.7 per cent (49/88), respectively. Potential risk of sensitisation in a recipient of other breed following non-typed blood transfusion using blood from galgos was 22.9 per cent. Due to the clinical significance of DEA 1.1 and the high prevalence of this blood group in galgos of Spain, we strongly recommend blood-typing for this group before administering any blood transfusion using galgos as donors, as with transfusions from other commonly used breeds.
Publication Type
Journal article.

Accession Number
20143116140
Author
Holowaychuk, M. K.; Leader, J. L.; Monteith, G.
Title

Source
Journal of the American Veterinary Medical Association; 2014. 244(4):431-437. 41 ref.

Publisher
American Veterinary Medical Association

Location of Publisher
Schaumburg

Country of Publication
USA

Abstract
Objective - To determine whether the number, volume, or age of transfused packed RBC units; volume of other blood products; or pretransfusion PCV was a risk factor for transfusion-associated complications or nonsurvival in dogs. Design - Retrospective case series. Animals - 211 client-owned dogs receiving stored packed RBC transfusions. Procedures - Information collected or calculated from the medical record of each dog included the total number, volume, and dose of packed RBC units; mean age of packed RBC units; number of packed RBC units >14 days old; age of oldest packed RBC unit; volume and dose of other blood products used; pretransfusion PCV; acute patient physiologic and laboratory evaluation score; transfusion-associated complications; and outcome. Results - The dose (mL/kg) of other blood products transfused was a risk factor for transfusion-associated complications (OR, 1.03; 95% confidence interval [CI], 1.01 to 1.05). The pretransfusion PCV (OR, 1.13; 95% CI, 1.06 to 1.21) and dose of packed RBCs administered (OR, 1.04; 95% CI, 1.02 to 1.07) were risk factors for nonsurvival. Age of transfused packed RBC units was not identified as a risk factor for transfusion-associated complications or nonsurvival, but the study was statistically underpowered to detect this finding. Conclusions and Clinical Relevance - Administration of larger doses of other non-packed RBC blood products was a risk factor for transfusion-associated complications, and a higher pretransfusion PCV and larger dose of packed RBCs administered were risk factors for nonsurvival. Prospective randomized studies are needed to determine whether conservative transfusion strategies will reduce transfusion-associated complications and improve outcome in dogs.

Publication Type
Journal article.

<3>

Accession Number
20143016534

Author
Ognean, L.; Stefanut, C.; Moldovan, M.; Barabasi, I.; Arion, A.; Oltean, M.

Title
Transfusion blood compatibility evaluation in cats using Crossmatch tests.

Source

Publisher
University of Agricultural Sciences and Veterinary Medicine

Location of Publisher
Cluj-Napoca

Country of Publication
Romania

Abstract
Crossmatch tests are used for rapid identification of natural or induced anti-erythrocyte antibodies (hemolizines and hemaglutinines), reducing the risk of transfusion reactions. This test is recommended for every feline patient with unknown history and is mandatory starting with the second transfusion even if the blood used is of the same blood group or comes from the same
The purpose of this study is to appreciate the efficacy of some Crossmatch tests that evaluate transfusion compatibility in cats, by: comparing different Crossmatch tests and some anticoagulants; identifying donor and patient carriers of anti-erythrocyte antibodies; implementing a rapid Crossmatch test on slides and compatibility evaluation in cancer patients. Using one original and five known Crossmatch techniques on slides, pre-transfusion compatibility was tested on four sample groups of blood: 1 - blood drawn on EDTA or CPDA1 for recipient (n=7) - donor (n=7) pre-transfusion compatibility evaluation; 2 - blood drawn on EDTA or CPDA1 from healthy donors (n=30) and recipients (n=30); 3 - blood samples drawn on EDTA (n=10) and CPDA1 (n=10) for evaluating their influence on agglutination reactions in stored blood (at 2-8 degrees C for up to 15 days); 4 - canine (n=5) and feline (n=5) blood samples to serve as "positive control reactions". The negative Crossmatch test results in group one led to whole blood (WB) transfusions in all seven patients, from which we have found only one patient with agglutination reactions, indicating incompatibility with one of the donors. Test results from group two revealed a large number of agglutination reactions (eight for major and seven for minor Crossmatch), despite the fact that none of the subjects were previously transfused. Washing the red blood cells helped diminish the number of rouleaux for these patients, but without reducing the number of agglutinations. In group 3 we have not observed agglutination reactions after three-day storage in the blood samples drawn on EDTA, where as the samples drawn on CPDA1 maintained this capacity even after fifteen days of storage, with rouleaux formation being less frequent. The interspecies agglutination reactions in group four were at maximum intensity that we used as "positive control". Crossmatch tests on slides proved to be as relevant as the ones performed in tubes for the detection of high titers of allo-antibodies, uncertain reactions needing to be clarified by adding normal saline and/or further examination under a microscope. Agglutinations can be attributed to group allo-antibodies or some unknown erythrocyte antigens.

Publication Type
Journal article.

Accession Number
20133418054
Author
Hronova, N.; Jolliffe, C.
Title
Human serum albumin transfusion.
Source
Veterinary Times; 2013. 43(50):10-11. 12 ref.
Publisher
Veterinary Business Development Ltd
Location of Publisher
Peterborough
Country of Publication
UK
Publication Type
Journal article.

Accession Number
20133334964
Author
Ognean, L.; Morar, I.; Moldovan, M.; Barabasi, I.; Oltean, M.; Vlasiu, A.
Title
The management of potential donors and blood products in a Transylvanian veterinary clinic.
Source
A program for the management of potential canine and feline donors and blood products was implemented in a private veterinary clinic from Cluj. The potential canine and feline donors were introduced in this program after thorough clinical, hematological, biochemical and coproparasitological tests as well as screenings for infectious diseases. A sample group of 10 permanent and 25 emergency canine donors was formed with mostly DEA 1.1 positive individuals. Blood units (450-500 ml) were collected 4 times a year, in a 3 month interval, from the permanent donors, all with a body weight over 30 kg. The feline sample group consisted of 9 cats with type A blood group, that were used only in emergency cases. Blood was drawn from the jugular vein or, in some cases, from peripheral veins by free flow or extraction. The units were collected in open or closed systems using standardized blood bags with CPDA1 for sterile collection or vials with sodium citrate. During the collection process the donors had to be immobilized for 10-15 minutes, some of which, especially the feline donors, needed to be sedated or tranquilized (diazepam rectally, acepromazine). An average of 15 ml/kg blood was drawn from the canine donors (with an average PCV of 47.41%) and 11 ml/kg from the feline donors (with an average PCV of 38.20%), none of which showed symptoms of hypovolemia, anemia, or any other changes of the vital signs. In the blood collection process some technical difficulties were also encountered, such as blood clothing in the collection needle or in the collection tube, making it necessary to stop the collection process. A few donors developed long lasting hypotension as an adverse reaction to the acepromazine. The clinic was able to maintain though this program a monthly stock of blood products, including 2 units of whole blood, 1 unit of plasma and 1 unit of erythrocyte concentrate. The majority of the blood products were used in the clinic, except 4 units of whole blood and 7 units of erythrocyte concentrate that was not used in the 25 days that is considered as the safe storage period.
acid blood samples from dogs donating blood between August 2007 and January 2012 were screened by polymerase chain reaction for haemotropic mycoplasmas, Bartonella, Babesia, Leishmania, Ehrlichia and Anaplasma spp. Dogs with positive or inconclusive results underwent repeat polymerase chain reaction testing. Results: Four of 262 dogs had positive or inconclusive results at initial screening. Repeat polymerase chain reaction testing in each dog was negative, and none of the dogs developed clinical signs of disease. Clinical Significance: The positive results on initial screening may have represented false positives from sample contamination or amplification of non-target DNA. It is also possible that dogs were infected at initial sampling but successfully cleared infection before repeat testing. The low number of positive results obtained suggests that prevalence of these agents in a population of healthy UK dogs is low and that use of blood products is unlikely to represent a significant risk of transmission of these diseases.

Publication Type
Journal article.

<7>
Accession Number
20133254338
Author
Title
Bartonella species infection in cats: ABCD guidelines on prevention and management. (Special Issue: Infectious diseases, Part 2.)
Source
Publisher
Sage Publications
Location of Publisher
Thousand Oaks
Country of Publication
USA
Abstract
Overview: Over 22 Bartonella species have been described in mammals, and Bartonella henselae is most common worldwide. Cats are the main reservoir for this bacterium. B. henselae is the causative agent of cat scratch disease in man, a self-limiting regional lymphadenopathy, but also of other potentially fatal disorders in immunocompromised people. Infection: B. henselae is naturally transmitted among cats by the flea Ctenocephalides felis felis, or by flea faeces. A cat scratch is the common mode of transmission of the organism to other animals, including humans. Blood transfusion also represents a risk. Disease signs: Most cats naturally infected by B. henselae do not show clinical signs but cardiac (endocarditis, myocardiitis) or ocular (uveitis) signs may be found in sporadic cases. B. vinsonii subspecies berkoffii infection has reportedly caused lameness in a cat affected by recurrent osteomyelitis and polyarthritis. Diagnosis: Isolation of the bacterium is the gold standard, but because of the high prevalence of infection in healthy cats in endemic areas, a positive culture (or polymerase chain reaction) is not confirmatory. Other compatible diagnoses must be ruled out and response to therapy gives a definitive diagnosis. Serology (IFAT or ELISA) is more useful for exclusion of the infection because of the low positive predictive value (39-46%) compared with the good negative predictive value (87-97%). Laboratory testing is required for blood donors. Disease management: Treatment is recommended in the rare cases where Bartonella actually causes disease.
Publication Type
Journal article.
Principles of blood transfusion and crossmatching.

Veterinary hematology and clinical chemistry; 2012. (Ed.2):205-232. 78 ref.

Microparticles in stored canine RBC concentrates.

Veterinary Clinical Pathology; 2013. 42(2):163-169. 35 ref.

Background: Transfusion of RBC concentrates may cause adverse effects in the recipient, particularly when stored >2 weeks. Prestorage removal of WBCs and platelets (leukoreduction, LR) improves clinical outcome in the human recipient. As blood ages during storage, progressive alterations in the structure and function of the cells occur. Changes in cell membranes may lead to formation of microparticles (MPs) in stored blood. Objectives: The aim of the study was to quantify MP concentration in supernatants from canine RBC concentrates from 11 clinically healthy dogs. Methods: Whole blood units (n=11) were collected and randomized either to be stored without LR (n=5), or to be subject to prestorage LR (n=6). Whole blood was processed for the generation of RBC concentrates, from which aliquots were aseptically collected weekly for 5 weeks. Supernatants from the concentrates were evaluated for phosphatidylserine-expressing MPs by flow cytometry using staining with Annexin-V-phycoerythrin. Results: Microparticle counts were similar between non-LR and LR units on storage days 0 and 7, but were significantly higher in non-LR units on days 14, 21, 28, and 35. MPs increased during the 35-day storage by a mean (SD) of 1.8 (1.4)-fold in LR units and 5.5 (3.1)-fold in non-LR units. Conclusions: There was marked formation of phosphatidylserine-expressing MPs during storage beyond 7 days in canine RBC concentrates. Prestorage LR attenuated the generation of MPs.
Background: Transfusion of compatible blood types ensures the vitality of transfused erythrocytes and avoids transfusion reactions. Cats with types A, B, and AB blood should receive transfusions of the same blood type. In a feline blood donor program, it is therefore essential to have blood donors of all blood types available. Objectives: The objectives of this study were the identification of the 3 feline blood types in Ragdoll cats, the comparison of their frequencies with those of Domestic Shorthair (DSH) cats, and the determination of whether Ragdolls are suitable donors in a feline blood donor program. Methods: The blood type was determined by gel column agglutination from Ragdoll cats. The relationships between phenotypic traits, the origin of the cats, and the different blood types were examined. The frequencies for potential transfusion reactions and the risk for neonatal isoerythrolysis (NI) were estimated. Results: Of 61 typed Ragdolls, 77.1% had type A, 4.9% type B, and 18% type AB blood. The frequency of blood type A in Ragdolls was lower than in DSH cats (P=.02), while the frequency of blood type AB in Ragdolls was higher than in DSH cats (P=.0002). No relationship was found between blood type and origin of the cat or phenotypic traits. The estimated frequencies of major and minor transfusion reactions following an unmatched transfusion between Ragdolls (donors and recipients), Ragdoll donors and DSH recipients, and DSH donors and Ragdoll recipients were 4.7%, 6.7%, 4.6%, and 18.5%, 20.8%, 7.6%, respectively. The frequency of kittens at risk for NI was 5%. Conclusion: The presence of all 3 feline blood types and a relatively high incidence of AB type cats make Ragdolls an ideal donor breed to include in feline blood transfusion programs.
Xenotransfusion (the transfusion of blood from another species) of canine blood to cats has been historically performed commonly and is still performed nowadays in some countries. Considering the current lack of commercial availability of haemoglobin-based oxygen carrier solution (Oxyglobin), there may be rare occasions when treating an anaemic cat when compatible feline blood cannot be obtained, and where a transfusion with canine blood may need to be considered as a life-saving procedure. This article reviews the published evidence about feline xenotransfusion with canine blood and the results that can be expected with this procedure. Published evidence in a limited number of cases (62 cats) indicates that cats do not appear to have naturally-occurring antibodies against canine red blood cell antigens: compatibility tests prior to the first transfusion did not demonstrate any evidence of agglutination or haemolysis of canine red cells in feline serum or plasma. No severe acute adverse reactions have been reported in cats receiving a single transfusion with canine whole blood. Anaemic cats receiving canine blood are reported to improve clinically within hours. However, antibodies against canine red blood cells are produced rapidly and can be detected within 4-7 days of the transfusion, leading to the destruction of the transfused canine red cells in a delayed haemolytic reaction. The average lifespan of the transfused canine red cells is less than 4 days. Any repeated transfusion with canine blood later than 4-6 days after the first transfusion causes anaphylaxis, which is frequently fatal.

**Publication Type**
Journal article.
experienced tachypnea during transfusion of CSA; this dog died of unknown respiratory causes 120 hours after transfusion. Conclusions: The administration of CSA in dogs with septic peritonitis results in an increase in ALB, COP, and DBP 2 hours after administration. An increase in ALB persisted at 24 hours compared with a CDT group. Administration of this product was not associated with owner-reported delayed adverse events in this population of dogs.

Publication Type

Accession Number
20123366460
Author
Purohit, S.; Srivastava, M. K.; Malik, V.; Ashish Srivastava; Pandey, R. P.
Title
Canine blood transfusions.
Source
Publisher
Intas Pharmaceuticals Ltd
Location of Publisher
Ahmedabad
Country of Publication
India
Abstract
Blood transfusions in canine have become increasingly common and are an integral part of lifesaving and advanced treatment of the critically ill patients. Total blood volume in dogs is approximately 90 ml/kg body weight. The dogs have at least thirteen different blood groups but there are currently eight internationally serologically recognized blood group antigens labeled as DEA 1 to 8. Although transfusions are beneficial but they are also associated with adverse events that can be themselves life threatening.

Publication Type

Accession Number
20123226422
Author
Humm, K.
Title
How to administer a transfusion safely.
Source
Publisher
British Small Animal Veterinary Association
Location of Publisher
Quedegeley
Country of Publication
UK
Publication Type
Conference paper.

Accession Number
20123217422
Author
Branquinho, T.; Ortiz, V.; Vala, H.; Ferreira, R.; Santos, C.; Oliveira, A. L.
Title
Blood transfusions in dogs and cats: blood typing and cross matching.

Source
The Veterinary Nurse; 2012. 3(1):12-19. 31 ref.

Publisher
MA Healthcare Limited

Location of Publisher
London

Country of Publication
UK

Abstract
The blood transfusion (administration of blood) is a resource of veterinary medicine with several indications. Point-of-care blood-typing methods, including both typing cards and rapid gel agglutination, are readily available. Following blood typing, cross matching is performed on one or more donor units of appropriate blood type. Cross matching reduces the risk of transfusion reactions but does not completely eliminate the risk of other types of transfusion reactions in veterinary patients. All transfusion reactions should be appropriately documented and investigated. It is, therefore, important to have in-depth technical knowledge about concepts and procedures involved in clinical blood transfusion, so that the entire procedure can be performed in the most appropriate way and with a high success rate.

Publication Type
Journal article.

Use of fresh platelet concentrate or lyophilized platelets in thrombocytopenic dogs with clinical signs of hemorrhage: a preliminary trial in 37 dogs.

Objective: To examine the safety and feasibility of using lyophilized platelets (LYO) and fresh platelet concentrate (FRESH) in bleeding thrombocytopenic dogs. Design: Preliminary prospective randomized clinical trial. Setting: Two private referral centers and 3 university teaching hospitals. Animals: Thirty-seven dogs with a complaint of hemorrhage associated with thrombocytopenia (platelet count <70x10^9/L [70,000/µL], a hematocrit >15%, and that had received neither vincristine nor platelet-containing transfusions within 72 h of enrollment were studied. Interventions: Animals were randomized to receive LYO or FRESH, dosed according to weight. Physical examination, complete blood counts, and coagulation testing (prothrombin time and activated partial thromboplastin time) were performed at enrollment. Physical examinations were also performed immediately post transfusion, and at 1 and 24 h after transfusion. Complete blood counts were repeated immediately post transfusion and at 24 h. Collected data included bleeding score (BLS), response to transfusion, adverse reactions, hospitalization time, need for additional transfusions, survival to discharge, and 28-d survival. Measurements and Main Results: Twenty-two dogs received LYO and 15 received FRESH. There was no difference between groups in age, weight, BLS, platelet count, white blood cell count,
hematocrit, or presence of melena. There was no difference between groups in transfusion reaction rates, the need for additional transfusions, 24-h BLS, hospitalization time, survival to discharge, or 28-d survival. Conclusions: Transfusion of LYO was feasible and associated with a low transfusion reaction rate in this limited study of thrombocytopenic canine patients presenting with mild-to-severe hemorrhage. LYO were easy to use and provided storage advantages over FRESH. Further study of this product, including examination of efficacy and platelet life span, is warranted.

Publication Type

<17>

Accession Number
20123012201

Author

Title
Frequency of dog erythrocyte antigen 1.1 in 4 breeds native to different areas in Turkey.

Source

Publisher
Wiley-Blackwell

Location of Publisher
Boston

Country of Publication
USA

Abstract
Background: Dog erythrocyte antigen (DEA) 1.1 is the most important RBC antigen clinically, as it is highly immunogenic and causes acute hemolytic transfusion reactions (HTR) in sensitized dogs. Objectives: The aims of this study were to determine the frequency of DEA 1.1 expression in 4 Turkish dog breeds, and to estimate the potential risk of HTR when blood from a DEA 1.1-positive donor is administered to a DEA 1.1-negative recipient following sensitization by a prior mismatched transfusion. Methods: EDTA blood samples (n=178) were typed for DEA 1.1 using a commercial gel-column agglutination test (ID-Gel-Test Canine DEA 1.1). Probabilities of sensitization and risk of an HTR were calculated. Results: The frequency of positivity for DEA 1.1 among Kars (n=59), Kangal (n=53), Akbash (n=50), and Catalburun (n=16) breeds was 71.2%, 67.9%, 60.0%, and 50.0%, respectively. Potential risk for occurrence of an HTR after administration of blood from a dog of the same breed ranged from 12.5% to 14.8%, whereas HTR induced by blood of a dog from a different breed ranged from 7.2% to 25.3%. Conclusions: The frequency of DEA 1.1-positive dogs among 4 Turkish breeds is high compared with that of most other breeds previously surveyed. The predicted risk of both sensitization and occurrence of DEA 1.1-related HTR following transfusion between dogs of either the same or different Turkish breeds was considerable. Although few dogs are transfused >=4 days after the first transfusion, we recommend that (1) all donors and recipients be typed for DEA 1.1, (2) DEA 1.1-negative recipients receive only DEA 1.1-negative blood, and (3) blood be cross-matched prior to transfusing any dog >=4 days after the first transfusion. These guidelines are also applicable to other breeds and countries.

Publication Type
Journal article.

<18>

Accession Number
20113361842

Author
Boag, A.; Walton, J.

Title
Utilising blood plasma products for canine conditions: five case studies.
Cases from around the UK, where dogs presenting with a variety of conditions and severity benefited from blood plasma therapy, are described. Focus is given on von Willebrand factor deficiency, suspected hereditary factor VII deficiency, rodenticide toxicity, lungworm (Angiostrongylus vasorum) infection and hereditary haemophilia A. The future use of plasma products is also discussed.

Abstract

In vitro lysis and acute transfusion reactions with hemolysis caused by inappropriate storage of canine red blood cell products.

Background: Transfusion of red blood cell (RBC) products carries considerable risk for adverse reactions, including life-threatening hemolytic reactions. Objective: To report the occurrence and
investigation of life-threatening acute transfusion reactions with hemolysis in dogs likely related to inappropriate blood product storage. Animals: Four dogs with acute transfusion reactions and other recipients of blood products. Methods: Medical records were reviewed from 4 dogs with suspected acute hemolytic transfusion reactions after receiving RBC products at a veterinary clinic over a 1-month period. Medical records of other animals receiving blood products in the same time period also were reviewed. Blood compatibility and product quality were assessed, subsequent transfusions were closely monitored, and products were diligently audited. Results: During or immediately after RBC product transfusion, 4 dogs developed hemolysis, hemoglobinuria, or both. Two dogs died and 1 was euthanized because of progressive clinical signs compatible with an acute hemolytic transfusion reaction. Blood type and blood compatibility were confirmed. RBC units from 2 blood banks were found to be hemolyzed after storage in the clinic's refrigerator; no bacterial contamination was identified. After obtaining a new refrigerator dedicated to blood product storage, the problem of hemolyzed units and acute transfusion reactions with hemolysis completely resolved. Conclusions: Acute life-threatening transfusion reactions can be caused by inappropriate storage of RBC products. In addition to infectious disease screening and ensuring blood-type compatibility, quality assessment of blood products, appropriate collection, processing, and storage techniques as well as recipient monitoring are critical to provide safe, effective transfusions.

Publication Type
Journal article.

<22>
Accession Number
20113259506
Author
Tobin, L.
Title
Practical applications of canine blood transfusions in practice.
Source
VN Times; 2011. 11(8):12, 14. 8 ref.
Publisher
Veterinary Business Development Ltd
Location of Publisher
Peterborough
Country of Publication
UK
Abstract
Blood transfusions in human medicine are commonplace and advances in small animal medicine have meant that transfusions in veterinary practices have increased in recent years. Fit, healthy donors must be selected to ensure the blood they provide is of good quality and also that the process is not detrimental to the donor. Readily available in-house typing kits make it quick and easy to distinguish between DEA 1.1-negative and DEA 1.1-positive canine blood types. This allows the correct blood type to be transfused in most instances to reduce the risk of transfusion reactions. In-house cross-matching kits also help and are vital for dogs that have received multiple transfusions. Immune-mediated transfusion reactions can occur when typing and cross-matching of donor and recipient blood is not carried out. Aseptic collection and transfusion techniques, along with safe handling and storage of blood, must be carried out to reduce the risk of non-immune-mediated transfusion reactions.
Publication Type
Journal article.

<23>
Accession Number
20113235450
Objective - To determine the effect of 3 differing transfusion techniques on survival of autologous canine RBCs. Design - Prospective, blinded study. Setting - University Teaching Hospital. Animals - Nine healthy dogs. Interventions - Three distinct preparations of RBCs, each representing ~1% of red cell mass, were generated for each dog by biotinylation of RBCs at varying biotin densities. Labeled cells were transfused using 3 techniques (gravity, volumetric pump, syringe pump). Serial determinations of red cell survival were carried out by flow-cytometric analysis of RBCs collected at 7-day intervals for 49 days. In vitro analysis of the effect of transfusion methods on RBC integrity and osmotic fragility were carried out in 7/9 dogs. Measurements and Main Results - RBCs administered via volumetric and syringe pumps exhibited a marked decrease in short-term probability of survival compared with RBCs delivered by gravity flow. At 24 hours, only 4/8 and 1/7 dogs had surviving cell populations delivered by volumetric and syringe pump, respectively, compared with 8/8 dogs which had surviving cell populations delivered by gravity flow. Circulating half-life of cells surviving at 24 hours after delivery by volumetric pump was not significantly different to that delivered by gravity flow. No significant effect on in vitro RBC integrity or osmotic fragility was detected in relation to transfusion technique. Conclusions - Delivery of autologous canine RBCs via mechanical delivery systems was associated with a high risk for early loss of transfused cells.
cross-matched. Methods: Expression of DEA 1.1 was determined in 274 dogs using a migration gel test. Weight, sex, breed, and hair length and color were recorded for each dog. Results were analyzed by descriptive statistical analysis, probabilistic analysis, and chi-squared tests. Results: Of 274 dogs, 56.9% were DEA 1.1-positive and 43.1% were DEA 1.1-negative. All Boxers, German Shepherds, and Dobermans were DEA 1.1-negative, whereas all Saint Bernards, 88.9% of Golden Retrievers, 88.2% of Rottweilers, and 61.4% of mixed breed dogs were DEA 1.1-positive. A significant relationship between DEA 1.1 expression and phenotypic traits was not found. The probability of sensitization of recipient dogs following first-time transfusion with blood that was not typed or cross-matched was 24.5%; the probability of an acute hemolytic reaction following a second transfusion with blood from any other donor in the absence of pretransfusion compatibility testing was 6%. Conclusion: The frequency of DEA 1.1 expression in dogs in Portugal is high, and there is a potential risk of sensitization following transfusion. Breed-related frequencies may help predict DEA 1.1-positivity, but the best practice is to type and cross-match blood before transfusion.
Transfusion medicine is a relatively new and rapidly growing area of research in veterinary medicine. Packed red blood cell transfusion (PRBC) is indicated for treatment of symptomatic anemia resulting from hemorrhage, hemolysis, or ineffective erythropoiesis. The objective of this retrospective study was to identify clinical manifestations and underlying diseases of dogs that received PRBC and determine possible transfusion complications and outcome. Donors were blood typed and previously tested for infectious diseases potentially transmitted by transfusion (Ehrlichia canis, Borrelia burgdorferi, Dirofilaria immitis, Anaplasma phagocytophila, Anaplasma platys, Babesia spp., Bartonella spp., and Rickettsia spp., and Leishmania infantum). Recipients were also blood typed and cross-matching was routinely performed before any transfusion. Packed cell volume (PCV) was performed before and after transfusion. Every PRBC transfusion was delivered by a bedside leukoreduction filter. Sixty-five PRBC transfusions were administered to 56 dogs. Twenty-two dogs resulted DEA 1.1 positive and 34 DEA 1.1 negative. Reasons for transfusion included anemia secondary to hemorrhage (n=48; 74%), hemolysis (n=8; 12%), and ineffective erythropoiesis (n=9; 14%). Median PCV before transfusion was 14.7% (range: 7-36%) and the mean post-transfusion was 21% (range: 9-39%). Mean increase in PCV was 6.5%. Thirty-one (70%) dogs were discharged and 17 (30%) dogs died or were euthanized. Transient hyperthermia was the only adverse reaction found. PRBC transfusion for symptomatic treatment of anemia is a safe and useful procedure, if the transfusion is closely supervised throughout its duration.

Publication Type
Journal article.

Accession Number
20113165934

Author
Giger, U.

Title
Transfusion medicine - do's and don'ts.

Source

Publisher
World Small Animal Veterinary Association

Conference paper.

Accession Number
20113161368

Author
Broadfoot, P. J.

Title
Blood therapy and antihomotoxic drugs: immune considerations.
Assessment of feline blood for transfusion purposes in the Dublin area of Ireland.

The prevalence of A, B and AB blood types and of feline immunodeficiency virus (FIV) and feline leukaemia virus (FeLV) infection was determined in cats in Ireland, in order to determine risk factors for blood taken for transfusion purposes. EDTA blood samples were available from 137 non-pedigree cats and 39 pedigree cats (91 females and 85 males, aged four months to 15.0 years) in the Dublin area of Ireland. Of the 176 EDTA blood samples obtained, 112 (from 92 healthy cats and 20 sick cats) were tested for the presence of both FIV antibodies and FeLV antigens. Blood typing was performed using an immunochromatographic cartridge (CHROM; Alvedia). Testing for FIV and FeLV was performed by ELISA (SNAP FIV/FeLV Combo Test; Idexx Laboratories). Of the 39 pedigree cats, the majority (38 [97.4 per cent]) was type A, and only one (2.6 per cent) was type B. Of the 137 non-pedigree cats, the majority (116 [84.7 per cent]) was type A, 20 (14.6 per cent) were type B, and one (0.7 per cent) was type AB. Of the 92 healthy cats tested, the prevalence of FIV and FeLV positivity was 4.35 and 1.09 per cent, respectively. None of the 20 sick cats tested was FIV-positive; two (10 per cent) of the 20 sick cats were FeLV-positive.

Blood transfusion in dogs and cats - review. [Portuguese]

Blood transfusion was performed in dogs and cats in the Dublin area of Ireland, in order to determine the prevalence of blood types and of feline immunodeficiency virus (FIV) and feline leukaemia virus (FeLV) infection. EDTA blood samples were available from 137 non-pedigree cats and 39 pedigree cats (91 females and 85 males, aged four months to 15.0 years) in the Dublin area of Ireland. Of the 176 EDTA blood samples obtained, 112 (from 92 healthy cats and 20 sick cats) were tested for the presence of both FIV antibodies and FeLV antigens. Blood typing was performed using an immunochromatographic cartridge (CHROM; Alvedia). Testing for FIV and FeLV was performed by ELISA (SNAP FIV/FeLV Combo Test; Idexx Laboratories). Of the 39 pedigree cats, the majority (38 [97.4 per cent]) was type A, and only one (2.6 per cent) was type B. Of the 137 non-pedigree cats, the majority (116 [84.7 per cent]) was type A, 20 (14.6 per cent) were type B, and one (0.7 per cent) was type AB. Of the 92 healthy cats tested, the prevalence of FIV and FeLV positivity was 4.35 and 1.09 per cent, respectively. None of the 20 sick cats tested was FIV-positive; two (10 per cent) of the 20 sick cats were FeLV-positive.
Blood transfusion represents a valuable tool emergency therapy, and sometimes it may be even a dangerous procedure, whose beneficial effects are temporary. Transfusional therapy aims to meet the basic needs to maintain the life of the animal, so that the clinician may have enough time to take the specific measures against the primary cause of anemia. The current trend is, whenever possible, to separate the whole blood and utilize its components, according to the needs of the patient, in order to reduce the risk of volume overloading and adverse reactions due to exposure to foreign antigens. There are basically six blood canine groups, which are designated by the main blood group antigen (AEC 1.1, 2, 3, 4, 5 and 7). Three blood groups have been identified in cats, called A, B and AB. Group A is the most common. Differently from dogs, cats can present natural antibodies, what may promote reactions even at the first transfusion. Thus, blood transfusion is an important form of therapy, that is able to save the life of the animal, provided that appropriate precautions are taken in relation to administration, always in an attempt to reduce the possibilities of transfusional reactions.

Abstract

Blood transfusions in dogs and cats. 2. Practicalities of blood collection and administration. Source

In Practice; 2010. 32(6):231-237. 9 ref.

Part 1 of this article, published in the May issue of In Practice (volume 32, pp 184-189), described the properties of different blood products in transfusion medicine and outlined how they might be used to best effect in veterinary practice. However, despite the increasing availability of such blood products, veterinary surgeons still need to know how to collect blood in emergency situations, and how to administer blood and blood products safely. As there is currently no blood banking system available for cats in the UK, collection and administration of blood in-house remains the only alternative for this species. This article discusses the selection of appropriate canine and feline donors and describes how to collect blood safely. In addition, it highlights the problems associated with the selection of feline donors with appropriate blood type.
Abstract

Acute hemorrhage and blood loss are frequently encountered problems in veterinary emergency and critical care. In addition to conservative therapy, autologous blood transfusion can be employed as useful supplement. There are several advantages; autologous blood is immediately accessible, does not evoke transfusion reactions or immunosuppression and carries no risk of transmission of disease. A variety of methods and techniques exist and are further described in this review. Autologous blood transfusions can be carried out as emergency treatment using direct aspiration and reinfusion, vacuum bottle system collection or centrifuge-based cell salvage. Pre-operative blood collection and storage, acute normovolemic hemodilution and intra- and post-operative salvage are other applications. Possible adverse effects after the transfusion of autologous blood are coagulopathy, embolism, sepsis or dissemination of malignant cells.
DEA system. In three patients, with severe form of lymphoma, osteosarcoma and acute renal failure, because of the intoxication with ethylene glycol, major and minor Crossmatch results represented incompatibility. Post transfusion, the basic haematological parameters have improved, especially in the case of dog with coagulopathy, confirmed by the consequent increases in 4 days of the following values: Ht from 20% to 37%, Hb from 7.5% to 12.9% and E from 3.2% to 6%. For the support of the safety and efficacy with whole blood therapy in the dogs, major relevance was attributed to higher recovery rates recorded in transfused patients (80%). The unhealed cases (20%) were suffering from severe disease; two of them were complicated with hemolysis after 2nd, respectively the 3rd compatible blood transfusion.

Publication Type
Journal article.

<34>
Accession Number
20103294898
Author
McMichael, M. A.; Smith, S. A.; Galligan, A.; Swanson, K. S.; Fan, T. M.
Title
Effect of leukoreduction on transfusion-induced inflammation in dogs.
Source
Publisher
Blackwell Publishing Ltd
Location of Publisher
Oxford
Country of Publication
UK
Abstract
Background: Removal of leukocytes (LR) has been shown to eliminate or attenuate many of the adverse effects of transfusion in experimental animals and humans. Hypothesis/Objectives: Transfusion of stored packed red blood cells (pRBCs) is associated with an inflammatory response in dogs and prestorage LR attenuates the inflammatory response. Animals: Thirteen random-source, clinically healthy, medium and large breed dogs. Methods: Experimental study. On day 0, animals were examined and baseline blood samples were collected for analysis. Whole blood was then collected for processing with and without LR, and stored as pRBC. Twenty-one days later, stored pRBCs were transfused back to the donor. Blood samples were collected before and 1 and 3 days after transfusion. Results: In the dogs that received non-LR pRBCs (n=6) there was a significant increase from baseline in white blood cell count from a mean (SD) of 8.20 (2.74) to 13.95 (4.60) x 10<sup>3</sup> cells/ micro L (P<.001) and in segmented neutrophil count from a mean (SD) of 5.76 (2.70) to 11.91 (4.71) x 10<sup>3</sup> cells/ micro L (P<.001). There were also significant increases in fibrinogen from a mean (SD) of 129.7 (24.2) to 268.6 (46.7) mg/dL (P<.001) and C-reactive protein from a mean (SD) of 1.9 (2.1) to 78.3 (39.3) micro g/mL (P<.001). There was no significant increase from baseline in any of the markers in the dogs that received LR pRBC (n=5). Conclusions and Clinical Importance: There is a profound inflammatory response to transfusion in normal dogs, which is eliminated by LR of the pRBC units.
Publication Type
Journal article.

<35>
Accession Number
20103254560
Author
Tocci, L. J.
Red blood cell transfusions in veterinary medicine have become increasingly more common and are an integral part of lifesaving and advanced treatment of the critically ill. Common situations involving transfusions are life-threatening anemia from acute hemorrhage or surgical blood loss, hemolysis from drugs or toxins, immune-mediated diseases, severe nonregenerative conditions, and neonatal isoerythrolysis. Although transfusions can be lifesaving, they are also associated with adverse events that can be life threatening. This article reviews the principles for pretransfusion blood typing and compatibility testing and the types of transfusion reactions that exist despite test performance.

Transfusion medicine in small animal practice. (Special Issue: Immunology: function, pathology, diagnostics, and modulation.)


Helm, J.; Knottenbelt, C.

Blood transfusions in dogs and cats 1. Indications.


Shaw, S. P.
Title
Transfusion therapy: a primer.

Source

Publisher
The North American Veterinary Conference

Location of Publisher
Gainesville

Country of Publication
USA

Publication Type
Conference paper.

Abstract
Objective - To review the evolution of and controversies associated with allogenic blood transfusion in critically ill patients. Data sources - Veterinary and human literature review. Human Data Synthesis - RBC transfusion practices for ICU patients have come under scrutiny in the last 2 decades. Human trials have demonstrated relative tolerance to severe, euvolemic anemia and a significant outcome advantage following implementation of more restricted transfusion therapy. Investigators question the ability of RBCs stored longer than 2 weeks to improve tissue oxygenation, and theorize that both age and proinflammatory or immunomodulating effects of transfused cells may limit efficacy and contribute to increased patient morbidity and mortality. Also controversial is the ability of pre- and post-storage leukoreduction of RBCs to mitigate adverse transfusion-related events. Veterinary Data Synthesis - While there are several studies evaluating the transfusion trigger, the RBC storage lesion and transfusion-related immunomodulation in experimental animal models, there is little research pertaining to clinical veterinary patients. Conclusions - RBC transfusion is unequivocally indicated for treatment of anemic hypoxia. However, critical hemoglobin or Hct below which all critically ill patients require transfusion has not been established and there are inherent risks associated with allogenic blood transfusion. Clinical trials designed to evaluate the effects of RBC age and leukoreduction on veterinary patient outcome are warranted. Implementation of evidence-based transfusion guidelines and consideration of alternatives to allogenic blood transfusion are advisable.

Publication Type
Journal article.
Acute transfusion reactions after the administration of whole blood and blood components in dogs.

Source: 34th World Small Animal Veterinary Association Congress, Sao Paulo, Brazil, 21-24 July 2009; 2009. :unpaginated. 13 ref.

Canine platelet transfusions.

Source: Journal of Veterinary Emergency and Critical Care; 2009. 19(5):401-415. 81 ref.

Objective - To review potential platelet storage options, guidelines for administration of platelets, and adverse events associated with platelet transfusions. Data Sources - Data sources included original research publications and scientific reviews. Human Data Synthesis - Transfusion of platelet concentrates (PCs) plays a key role in the management of patients with severe thrombocytopenia. Currently PCs are stored at 22 degrees C under continuous gentle agitation for up to 5 days. Chilling of platelets is associated with rapid clearance of transfused platelets, and galactosylation of platelets has proven unsuccessful in prolonging platelet survival. Although approved by the American Association of Blood Banks, cryopreservation of human platelets in 6% DMSO largely remains a research technique. Pre-storage leukoreduction of PCs has reduced but not eliminated acute inflammatory transfusion reactions, with platelet inflammatory mediators contributing to such reactions. Veterinary Data Synthesis - Canine platelethpheresis allows collection of a concentrate with a high platelet yield, typically 3-4.5x10<sup>11</sup> versus <1x10<sup>11</sup> for whole blood-derived platelets, improving the ability to provide sufficient platelets to meet the recipient's transfusion needs. Cryopreservation of canine platelets in 6% DMSO offers immediate availability of platelets, with an acceptable posttransfusion in vivo platelet recovery and half-life of 50% and 2 days, respectively. While data on administration of rehydrated lyophilized platelets in bleeding animal models are encouraging, due to a short lifespan (min) posttransfusion, their use will be limited to control of active bleeding, without a sustained increase in platelet count. Conclusions - Fresh PC remains the product of choice for control of bleeding due to severe thrombocytopenia or thrombopathia. While cryopreservation and lyophilization of canine platelets offer the benefits of immediate availability and long-term storage, the
compromise is decreased in vivo recovery and survival of platelets and some degree of impaired function, though such products could still be life saving.

Publication Type
Journal article.

<41>
Accession Number
20093270065
Author
Buckley, G. J.; Aktay, S. A.; Rozanski, E. A.
Title
Massive transfusion and surgical management of iatrogenic aortic laceration associated with cystocentesis in a dog.
Source
Publisher
American Veterinary Medical Association
Location of Publisher
Schaumburg
Country of Publication
USA
Abstract
Case Description - A 4-year-old 29-kg (63.8-lb) spayed female Husky crossbred was referred for emergency treatment because of catastrophic hemorrhagic shock following attempts at cystocentesis for investigation of suspected urinary tract infection. Clinical Findings - On arrival at the hospital, clinicopathologic assessments revealed rapidly decreasing PCV and worsening hypoproteinemia, compared with findings immediately prior to referral. The dog had severe hyperlactemia. Ultrasonography revealed the presence of free fluid in the abdomen; the fluid appeared to be blood (determined via abdominocentesis). Treatment and Outcome - Urgent surgical exploration was undertaken. Two small lacerations in the ventral aspect of the abdominal aorta just dorsal to the bladder were identified and repaired. Multiple transfusions of packed RBCs (5 units) and fresh frozen plasma (3 units) were administered, and autotransfusion of blood (1.2 L) from the abdomen was performed. The dog recovered well from surgery and anesthesia, but developed signs of severe pain and swelling of both hind limbs, which were attributed to reperfusion injury following aortic occlusion during surgery. Treatment included administration of S-adenosylmethionine (23 mg/kg [10.5 mg/lb], PO, q 24 h) and analgesia; 5 days after surgery, the hind limb problems had resolved and treatments were discontinued. Clinical Relevance - In the dog of this report, aortic laceration secondary to cystocentesis was successfully treated with a combination of surgery and massive transfusion; the development of reperfusion injury was an interesting and reversible complication of surgery. The possibility of damage to intra-abdominal structures should be investigated if a dog becomes acutely ill after cystocentesis.

Publication Type
Journal article.

<42>
Accession Number
20093245670
Author
Martinho, F.
Title
Indications and techniques for blood transfusion in birds. (Special Issue: Hematology.)
Source
Abstract
There is growing medical care related to emergency presentations and procedures used to treat companion and wild birds. These critical care procedures (e.g., blood transfusion) can be life-saving. To maximize the beneficial effects of blood transfusions administered to avian patients, it is necessary to have an understanding of avian hematology and erythropoiesis, recognize clinical conditions in which one performs a blood transfusion, know the proper procedures and techniques, and rapidly identify possible adverse reactions.

Objectives
- To review the principles and available technology for pretransfusion testing in veterinary medicine and discuss the indications and importance of test performance before RBC transfusion.

Data Sources - Current human and veterinary medical literature: original research articles and scientific reviews.

Summary - Indications for RBC transfusion in veterinary medicine include severe anemia or tissue hypoxia resulting from blood loss, decreased erythrocyte production, and hemolyzing conditions such as immune-mediated anemia and neonatal isoerythrolysis. Proper blood sample collection, handling, and identification are imperative for high-quality pretransfusion testing. Point-of-care blood typing methods including both typing cards and rapid gel agglutination are readily available for some species. Following blood typing, crossmatching is performed on one or more donor units of appropriate blood type. As an alternative to technically demanding tube crossmatching methods, a point-of-care gel agglutination method has recently become available for use in dogs and cats. Crossmatching reduces the risk of hemolytic transfusion reactions but does not completely eliminate the risk of other types of transfusion reactions in veterinary patients, and for this reason, all transfusion reactions should be appropriately documented and investigated.

Conclusion - The administration of blood products is a resource-intensive function of veterinary medicine and optimizing patient safety in transfusion medicine is multifaceted. Adverse reactions can be life threatening. Appropriate donor screening and collection combined with pretransfusion testing decreases the occurrence of incompatible transfusion reactions.
Abstract
Assessment of a blood preservation protocol for use in ferrets before transfusion.

Blood transfusion has been described in ferrets as a treatment for oestrus-associated anaemia and as a life-saving therapy following trauma, iatrogenic (usually surgery-induced) anaemia, autoimmune haemolytic anaemia and pure red cell aplasia. Although blood banking is a common method for storage of feline and canine blood it is not currently done with ferret blood. The aim of this study was to determine the shelf-life of ferret blood using the anticoagulant citrate-phosphate-dextrose-solution with adenine (CPDA). Two male ferrets were used as blood donors. From each ferret, 6 ml of blood was taken from the cranial vena cava and stored in 10 ml polyethylene terephthalate (PET) blood tubes containing 1 ml of CPDA solution. Blood was taken from each ferret once per month for five months. These 10 blood samples were stored in a laboratory refrigerator at 4°C for four weeks. Biochemical (glucose, pH, lactate, potassium, sodium) and haematological (haematocrit, light microscopic blood smear examination) analyses were performed on the stored blood at days 0, 7, 14, 21 and 28. Biochemical analyses revealed a progressive decrease from day seven in the stored blood pH, glucose and sodium, with a concomitant increase in lactate and potassium. These results are attributable to the ongoing metabolism and deterioration of the red blood cells (RBC) while in storage, and are more rapid than described for human or canine stored blood. Haematological analyses revealed a progressive elevation of the haematocrit due to the appearance of hypochromic red blood cells and echinocytes beginning at day 7. Haemolysis was observed in the microhaematocrit capillary tube sample by day 21, and microscopic clots were visible on the blood smear by day 28. The low blood pH and the appearance of many hypochromic RBCs and some echinocytes from day 7 in CPDA-stored ferret blood, suggest stored ferret blood has a short shelf-life when compared with stored human or canine blood. We recommend that ferret blood stored in CPDA should not be used for transfusion after seven days of storage at 4°C.

Abstract
Assessment of clinical and laboratory variables as a guide to packed red blood cell transfusion of euvolemic anemic dogs.
Kisielewicz, C.; Self, I.; Bell, R.; Wiley-Blackwell, Boston, USA, Assessment of clinical and laboratory variables as a guide to packed red blood cell transfusion of euvolemic anemic dogs, 2014, 28, 2, 576-582

Background: There are no standardized guidelines for determining the likelihood that euvolemic anemic dogs will benefit from transfusion of packed red blood cells (pRBC). Objectives: To report clinical and laboratory variables of dogs receiving pRBC transfusion, which could guide transfusion of other anemic dogs. Animals: Twenty-four client-owned anemic dogs receiving pRBC transfusion. Methods: Prospective study; 30 transfusions assessed. Clinical findings (mucosal color, pulse quality, heart rate, respiratory rate, mentation/exercise tolerance) before and after transfusion were evaluated by the anemic dog clinical assessment score (ADCAS). Hemoglobin concentration, hematocrit, venous oxygen content (CvO2), and lactate concentration were measured from blood samples taken before and after transfusion. These results were not used for case management. Results: All ADCAS variables decreased significantly with transfusion (P2 were 2 increased significantly with transfusion (PP=.006). Conclusions and Clinical Importance: Clinical and laboratory variables improved significantly after transfusion of pRBC. By identifying how transfusion affected these variables, it was possible to recognize clinical (ADCAS) and laboratory (hemoglobin, CvO2, lactate) variables, which could be useful in guiding the decision to transfuse dogs with similar presentations.
Blood groups in cats.
Part 1, 48-52

The feline AB blood group system has clinical importance because of the presence of naturally occurring alloantibodies. Thus, 30% of type A only cats have detectable anti-B antibodies, while those of type B are all carriers of anti-A, which is the cause of a strong immune response. The latter are responsible for neonatal isoerythrolysis and potentially fatal transfusion reactions. The prevalence of feline blood groups varies by breed, country and region. The various groups are defined by the presence of specific antigens (N-acetylneuraminic and N-glycolyneuraminic) in variable proportions on the surface of erythrocytes. Other surface antigens also have clinical importance such as the Mik red cell antigen discovered in 2007, and probably others are still to be discovered. This data supports the recommendations to ensure blood compatibility of the recipient and the donor before transfusion between cats by typing and possibly a cross-match.

Abstract
Blood transfusion basics.

This article describes the equipment and procedure for conducting blood transfusions in pets.

Abstract
Clinical management of ailments with blood transfusion in canines.

Blood transfusion is an effective therapeutic for treating canines anaemia but is practiced rarely. Present report on blood transfusion in one male and four female dogs suffering from urolithiasis, parvoviremia, gastro intestinal foreign bodies and pyometra. Their hemoglobin ranged from 4.3-7.0 gm%. The amount of blood transfused ranged from 100-150 ml and hemoglobin was increased by approximately 3 gm% in every case. The blood transfusion was performed in all the cases. The blood grouping was not done in animals of present study.

Abstract
Effect of syringe and aggregate filter administration on survival of transfused autologous fresh feline red blood cells.

Objective: To assess the effect of transfusion using a syringe and microaggregate filter on short-term survival and circulating half-life of autologous feline RBCs. Design: Prospective, internally controlled, observational study. Setting: A University Teaching Hospital. Animals: Six apparently healthy, owned cats. Interventions: Blood collection by jugular venipuncture. Transfusion with labeled, autologous, fresh RBCs. Measurements and Main Results: Anticoagulated whole blood (35 mL/cat) was collected in 2 equal aliquots. RBCs were washed and labeled at 2 different biotin densities, before suspension in autologous plasma. Labeled RBCs were then transfused using 2 methods, gravity flow and pump delivery using a 20 mL syringe and 18 µm microaggregate filter. Whole blood samples were collected from each cat at 2-hour intervals for 12 hours following completion of the transfusions. Additional samples were collected at weekly intervals up to 6 weeks to assess circulating half-life of the transfused cells. Cell survival was assessed via flow
The proportion of transfused cells remaining in each of the 2 populations was measured. Biotinylated RBCs were readily detected in all cats over the 6-week sampling period. There was a significant decrease in both populations of labeled cells over the 6-week period (P < 0.05).

Abstract
Incidence of acute lung injury in dogs receiving transfusions.
Thomovsky, E. J.; Bach, J.; American Veterinary Medical Association, Schaumburg, USA, Incidence of acute lung injury in dogs receiving transfusions, 2014, 244, 2, 170-174

Objective - To document the existence and incidence of acute lung injury (ie, veterinary acute lung injury [VetALI] per the 2007 consensus definition) in a population of client-owned dogs receiving transfusions for various clinical reasons. Design - Prospective observational study. Animals - 54 client-owned dogs. Procedures - Arterial blood gas analysis was performed for dogs receiving a transfusion (blood and plasma products) at 0 to 12 hours before and 24 to 48 hours after transfusion; dogs also underwent thoracic radiography 0 to 24 hours before and 24 to 48 hours after transfusion. The ratio of Pao2 to fraction of inspired oxygen (Fio2) was calculated. Dogs with posttransfusion radiographic signs of pulmonary infiltrates, a Pao2:Fio2 ratio 2 tests were used to compare the incidence in study dogs with the historical reported incidence of acute respiratory distress syndrome (ARDS) in ill dogs (not receiving transfusions) and transfusion-related acute lung injury (TRALI) in humans. Results - The incidence of VetALI (2/54 [3.7%]; 95% confidence interval, 0% to 8.73%) in study dogs was significantly less than the reported incidence of TRALI in humans (25%) and not significantly different from the reported incidence of ARDS in ill dogs (10%). Conclusions and Clinical Relevance - VetALI occurred in dogs that received transfusions at a frequency similar to that previously reported for ARDS in ill dogs that did not receive transfusions.

Abstract
Studies on therapeutic efficacy of fresh and stored blood transfusion in clinically anaemic canines.

25 clinically anemic canines randomly divided into 5 equal groups were studied. Group T5 was treated as control group, T1 was transfused with fresh blood and T2, T3, and T4 with 7, 14 and 21 day, preserved blood respectively. The hematology showed significant decrease in hemoglobin, PCV, total erythrocyte count and mean corpuscular hemoglobin concentration. But on 24, 72 and 120 hours post blood transfusion, a significant increase in the hematological parameters approaching to normal values were observed; where as no significant improvement was noticed in anemic control group treated with single i.m iron dextran injection.

Abstract
Transfusion in horses.