



# AVHTM Newsletter

## Special Events of Interest:

- **VECCS Spring Symposium**  
March 24-27 2022  
Puerto Rico
- **VCCIS Online Presentation: "IMHA: From Diagnosis to Treatment"**  
February 25 2022  
**VCCIS Zoom Room**
- **ACVECC Post Graduate Review "Advances in Trauma" and Coagulation in Trauma"**  
March 24-25 2022  
Las Vegas, NV
- **ACVECC VetCOT Veterinary Trauma & Critical Care Symposium**  
March 25-27 2022  
Las Vegas, NV.  
The conference will be held in conjunction with the ACVECC PGR (see above) and the Trauma, Critical Care & Acute Care Surgery Conference (March 28-30, 2022)
- **ACVIM Hematology and Immunology Course Virtual and On Demand Spring 2022**  
(More information coming soon)

A 501(c)(3) nonprofit professional association

Volume 5, Issue 3

## Welcome to the Autumn 2021 AVHTM Newsletter

We hope all is well with all our members all over the world. We have a report on the AVHTM stream at IVECCS from Dr Sarah Musulin and a reflection on the experience of conducting multi-centre research in transfusion medicine by Dr Jenny Walton. We also have our round up of upcoming CPD events and pertinent literature. Enjoy!

The AVHTM Committee

**Join us June 24, 2022; 6-9 PM Central**

**Austin Texas**

**AVHTM Board Meeting & Special Interest Group (SIG)**

**Presentation topics to be announced soon!**



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## **A UK Perspective on Thrombocytopenia and the use of Lyophilized Platelets – 3 Year Project Report for the Veterinary Transfusion Community**

This short summary documents the journey and challenges associated with designing and implementing a multicentre, randomized controlled trial on a clinically significant, relatively uncommon heterogenous presentation (severe thrombocytopenia with active bleeding), in the midst of a human pandemic.

The project was conceived in 2018. A US clinical trial that began in 2017 looking at severely thrombocytopenic, actively bleeding canines was concluding its enrollment phase. The US trial results were looking encouraging. The trial subsequently concluded with the finding that trehalose stabilized canine lyophilized platelets were logistically superior and clinically non inferior to one of the current standard of care platelet products available in the US for canines (DMSO cryopreserved platelets). 3

UK veterinary centres currently manage hemorrhage due to primary hemostatic (platelet) defects using drug treatment alongside fresh whole blood or available blood components. Almost all hemorrhage is managed without transfused platelets due to lack of availability of a UK banked platelet product and the challenges involved with harvesting appropriate volumes of fresh whole blood.

It was therefore considered appropriate to undertake a trial involving the transfusion of (lyophilized) platelets at a dose considered to be therapeutic in treating severe thrombocytopenia where active bleeding was apparent, in the UK.<sup>1,2</sup>

Jenny Walton, a UK veterinary surgeon with a 15 year history of working in the veterinary transfusion field, initiated the project idea and was appointed clinical lead.

Dr Anne Hale, a consultant for Bodevet, a Washington DC based company that is a sole-owned subsidiary to Cellphire, a US biotechnology company that are looking at human lyophilized platelets (Thrombosomes®), who had also sponsored the US trial, agreed to sponsor the UK trial.

Initial enquiries revealed that due to licensing legislation in the UK, such a study required a Veterinary Medicines Directorate (VMD) animal test certificate (ATC) necessitating a comprehensive application. As a multicentre study, welfare and ethics approval was also required for all centres participating.

Due to a desire for the project to be independently assessed, as well as aiming to be performed with the highest quality research methods possible, the project was also proposed to be part of a wider Master's degree thesis. An application was prepared and the trial became part of an MSc in Veterinary Clinical Research via Edinburgh University supervised by Professor Richard Mellanby at Edinburgh University (the awarding body), and Simon Tappin at Dick White referrals Cambridge-shire.

### **CLINICAL TRIAL SUMMARY POINTS**

On designing the trial, the absence of any existing platelet transfusion option allowed the trial to be designed as a blinded, randomized controlled trial, facilitated by the manufacture of a buffer solution that was visually indistinguishable from the test solution. Bodevet agreed to fund this additional level of research, to allow the trial to run in the most scientifically robust way possible. Enrollment number was calculated to look for significant difference but represented a small number of enrollments in order to comply with licensing regulations, be realistic concerning cases seen and keep within a reasonable budget. Small numbers are a consistent challenge in veterinary studies.

Enrolled canine patients had a DOGiBAT score of >2 (i.e were actively bleeding),<sup>4</sup> with a platelet count of <50,000/ul. Patients were not restricted by causal disease, however were not eligible to be enrolled if they had received vincristine, blood products, cyclophosphamide, IVIgG (human or canine) or tranexamic acid (TXA).

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The study was designed to look at safety and for significance in efficacy endpoints. The enrollment number requirement to look for significance was calculated to be 40 patients, 20 to the test group and 20 to the control group.

Initially, five centres began recruiting patients. Enrollment began after import of study solution vials from the US to the UK in July 2019, coinciding unfortunately with the first devastating wave of COVID 19, which affected everything and impacted down onto the clinic floor. After only six enrollments in the first six months and a plan to conclude the study over 12 months, a further four centres were added in March 2020 to enroll further patients.

A huge thank you goes to the committed clinical leads and clinics involved, without whom the study could not have taken place. Every centre enrolled at least one patient to the trial. The last patient was enrolled in February 2021.

- Daniel Lewis MA Vet MB Dip ACVECC cert VA - Vets Now Glasgow
- Craig Breheny BVM&S Dip ECVIM-CA MRCVS - Edinburgh University
- Patricia Ibarrola DipECVIM CA DSAM MRCVS- Davies Veterinary Specialists – Hertfordshire
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- Kevin Walton BVM&S MRCVS - Durham and Washington Vets4pets
- Andrea DiBella Cert SAM DipECVIM-CA MRCVS - Southern Counties Veterinary Specialists - Hampshire
- Sophie Adamantos BVSc CertVA DipACVECC DipECVECC MRCVS and Andrea Holmes BVSc DipECVIM-CA MRCVS - Paragon Veterinary Specialists – Wakefield
- Ludivine Boiron MSC DVM DAVECC DipACVECC MRCVS - Willows Veterinary Specialists – Birmingham
- Scott Kilpatrick BSc (Hons) BVM&S MSc DipECVIM-CA MRCVS- Wear Referrals - Durham

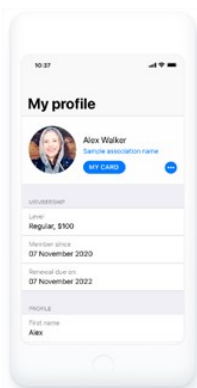
The masters degree thesis was written on interim results (20 patients) due to the two year timeline for the degree. The degree will be awarded in Autumn 2021.

The study concluded in February 2021 and once enrollment was completed, the findings closely matched the US study when looking at safety and efficacy endpoints. There were some additional interesting observations concerning the signalment and presentation of bleeding thrombocytopenic cases in the UK. Full results are pending abstract and peer reviewed paper submission.

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## An app to help you stay connected

Staying in touch has been difficult for all of us during this pandemic. Download the AVHTM's Members app and sign in with the same email



This app helps you:

- Interact with fellow members anywhere from your mobile device
- Update your member profile, including your address, phone and email
- View your membership card



Scan the QR code with your mobile device or click on the icon to download the app from the iTunes or Google Play app stores.

## A UK Perspective on Thrombocytopenia and the use of Lyophilized Platelets – 3 Year Project Report for the Veterinary Transfusion Community (continued from page 3)

Despite the considerable logistical challenges outlined above. The author does not regret undertaking the project alongside working in first opinion small animal general practice and is exceedingly grateful for the exponential learning curve that the three-year project represented. Some of the challenges were perhaps hurdles that may have been nice to avoid, being on 24 hour availability for the duration of the study for enrolment queries, urgent study compliance based queries and living the critical patients progression alongside their vet does not make for the most relaxing down time! However, she would encourage others to pursue their academic passions where opportunity allows and think outside the box of how to perform the studies.



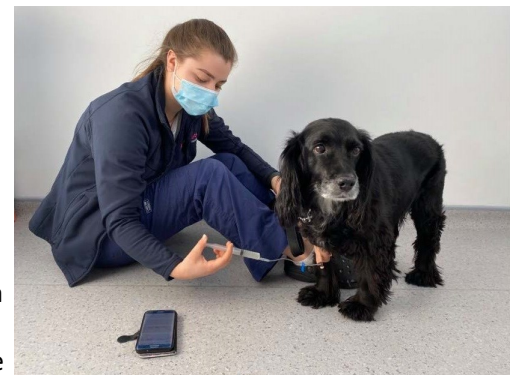
The veterinary profession is such a committed group of individuals who fight for their cases every hour of every day, all of whom are focused on making that all important difference to their current and future patients. Working across such a diverse group including industry, academia and practices from high level referral to first opinion provided a privileged insight.

Huge thanks go to all people mentioned in this summary, especially Dr Anne Hale, whose infinite knowledge and support has been instrumental every step of the way, and who the field of veterinary transfusion medicine owes a current and longstanding debt that will hold us steady for many years to come.

1. Hux BD, Martin LG. **Platelet transfusions: Treatment options for hemorrhage secondary to thrombocytopenia.** J Vet Emerg Crit Care. 2012;22(1):73-80. doi:10.1111/j.1476-4431.2011.00706.x
2. Callan MB, Appleman EH, Sachais BS. **Canine platelet transfusions: State-of-the-Art Review.** J Vet Emerg Crit Care. 2009;19(5):401-415. doi:10.1111/j.1476-4431.2009.00454.x
3. Goggs R, Brainard BM, LeVine DN, et al. **Lyophilized platelets versus cryopreserved platelets for management of bleeding in thrombocytopenic dogs: A multicenter randomized clinical trial.** J Vet Intern Med. 2020. doi:10.1111/jvim.15922
4. Makielski KM, Brooks MB, Wang C, Cullen JN, O'Connor AM, LeVine DN. **Development and implementation of a novel immune thrombocytopenia bleeding score for dogs.** J Vet Intern Med. 2018. doi:10.1111/jvim.15089

### IVECCS 2021 in Review

The AVHTM coordinated a well-received set of lectures this year at the **International Veterinary Emergency and Critical Care Symposium (IVECCS) 2021**. Drs. Alex Lynch, Ben Brainard, Armelle deLaforcade and Rob Goggs provided a two-hour case-based panel presentation on consumptive coagulopathy. The four presenters provided their clinical insight on how to diagnose and manage patients with varying etiologies and magnitudes of consumptive coagulopathies. Dr. Ben Brainard provided an additional two lectures on Veterinary Use of Oral Anti-Xa Therapeutics and Platelet Transfusion - The Old and the New. And finally, a two-part report on the AVHTM Transfusion Reaction Small Animal Consensus Statement (TRACS) articles published in JVECC 2021 was provided by some of the authors: Drs. Beth Davidow, Isabelle Goy-Thollot, Sarah Musulin, Katie Nash, Claire Sharp, Eva Spada and Jenny Walton. The TRACS presentations highlighted the process of creating these guidelines, some transfusion reaction definitions and used case examples to discuss utilization of the published diagnostic and treatment algorithms and transfusion monitoring form. Thank you to ABRI for sponsoring this track of AVHTM lectures at IVECCS 2021.





## Recently Published Articles

- **Feline blood donation adverse reactions: classification and description of acute and delayed reactions in a donor population.** Abreu TA, Oliveira AS, Ferreira RR, Correia SM, Morais MS, Soares R, Flaminio M, Mesa-Sanchez I, Gopegui RR, de Matos AJ. *J Feline Med Surg.* 2021 Jun 8: Online ahead of print.
- **Hemorrhagic shock and hemostatic resuscitation in canine trauma.** Edwards TH, Rizzo JA, Pusateri AE. *Transfusion.* 2021 Jul;61 Suppl 1:S264-S274
- **The effect of storage at 4°C on canine-specific albumin on product sterility and albumin concentration.** Mastrocco A, Cazzolli D, Prittie J. *J Vet Emerg Crit Care (San Antonio).* 2021 Sep;31(5):574-577.
- **Comparison of serum versus EDTA plasma in canine major crossmatch reactions.** Caudill MN, Meichner K, Koenig A, Berghaus RD, Garner B. *Vet Clin Pathol.* 2021 Sep;50(3):319-326.
- **Effect of Leukoreduction by Pre-Storage Filtration on Coagulation Activity of Canine Plasma Collected for Transfusion.** Spada E, Perego R, Baggiani L, Proverbio D. *Vet Sci.* 2021 Aug 4;8(8):157.
- **The frequency of feline AB blood types and the risk of incompatibility reactions in Bangkok, Thailand, and vicinities.** Sangkaew T, Pengpis S, Ritthikulprasert S. *Vet Clin Pathol.* 2021 Jun;50(2):198-202.
- **Effects of leukoreduction on N-methylhistamine concentration in stored units of canine whole blood.** Frank MJ, Khattab MR, Wills RW, Archer TM, Mackin AJ, Suchodolski JS, Lidbury JA, Steiner JM, Sullivant AM, Thomason JM. *Am J Vet Res.* 2021 Nov;82(11):890-896.
- **In vitro compatibility testing of canine and rabbit blood.** Cutler SM, Richardson J, Eatwell K, Llewellyn EA. *J Vet Emerg Crit Care (San Antonio).* 2021 Oct 17. Online ahead of print.
- **Hemolytic anemia blunts the cytokine response to transfusion of older red blood cells in mice and dogs.** Callan MB, Thawley VJ, Marryott KA, Shabro A, Fernando S, Kahn S, Hudson KE, Hod EA. *Transfusion.* 2021 Oct 11. Online ahead of print.
- **Ultrasonographic assessment of the caudal vena cava diameter in cats during blood donation.** Sanger F, Dorsch R, Hartmann K, Dorfelt R. *J Feline Med Surg.* 2021 Jul 27: Online ahead of print.
- **Comparison of healthy blood donor Greyhounds and non-Greyhounds using a novel point-of-care viscoelastic coagulometer.** Chang J, Jandrey KE, Burges JW, Kent MS. *J Vet Emerg Crit Care (San Antonio).* 2021 Sep 23. Online ahead of print.
- **Phenotypic and Genetic Characterization for Incompatible Cross-Match Cases in the Feline AB Blood Group System.** Uno Y, Yaguchi M, Kobayashi T, Onozawa E, Ochiai K, Yoshida K, Nakamura C, Udagawa C, Omi T. *Front Vet Sci.* 2021 Sep
- **Effect of Media with Different Glycerol Concentrations on Sheep Red Blood Cells' Viability In Vitro.** Pasciu V, Sotgiu FD, Porcu C, Berlinguer F. *Animals (Basel).* 2021 May 28;11(6):1592.
- **Biochemical and hematologic changes in whole blood from Brazilian horses stored in citrate-phosphate-dextrose-adenine pouches for up to 28 days.** Dorneles TEA, Costa Junior JD, Almeida RM, Teixeira Neto AR. *Vet Clin Pathol.* 2021 Jun;50(2):221-226.
- Letter regarding "Effect of dilution of canine blood samples on the specificity of saline agglutination tests for immune-mediated hemolysis," original and modified saline agglutination tests vs direct Coombs' tests." Giger U. *J Vet Intern Med.* 2021 May;35(3):1214-1215.
- **A Single Base Insertion in F9 Causing Hemophilia B in a Family of Newfoundland-Parti Standard Poodle Hybrid Dogs.** Kuder H, Sandzhieva-Vuzzo L, Kehl A, Rappaport JM, Muller E, Giger U. *Genes (Basel).* 2021 Sep 24;12(10):1491.
- **Comparative study of immunohematological tests with canine blood samples submitted for a direct antiglobulin (Coombs') test.** Idalan N, Zeitz JO, Weber CN, Muller E, Giger U. *Canine Med Genet.* 2021 Oct 13;8(1):10.
- **A novel bone marrow-sparing treatment for primary erythrocytosis in a cat.** Vasilatis DM, McGill JE, Gilor C. *J Vet Intern Med.* 2021; 35: 1977- 1980
- Letter: Giger U, Christopher MM. **Food for thought instead of onion powder as a treatment for erythrocytosis in cats.** *J Vet Intern Med.* 2021; 35: Online ahead of print.



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#### AVHTM

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**AVHTM** is an IRS approved 501(c)(3) nonprofit professional association composed of veterinarians, hematologists, academics, veterinary technicians, blood bankers, and interested public who desire to further scientific advances in transfusion medicine and veterinary hematology.

We engage in veterinary research, promote industry standards, develop guidelines for canine and feline blood collection and processing, and publish scientific research in peer-reviewed publications.

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- Reduced IVECCS registration fee (veterinarians save \$100 and technicians save \$25!)
- Access the a "Members Only" section of the AVHTM website, which includes access to:
  - o Other AVHTM profiles
  - o PubMed articles
  - o Forum for posting questions, cases, and research
  - o AVHTM Members App
- Ability to ask and answer questions posted to the AVHTM members-only Google group.

*Please feel welcome to share this newsletter with interested colleagues and encourage them to become an AVHTM member!*