

Clinical outcome after plasma transfusion in 28 dogs diagnosed with juvenile canine infectious gastroenteritis

Magalhães T¹, Araújo J², Batista S³, Dourado MJ², Gregório H³, Ribeiro L³, Queiroga F¹



1. University of Trás-os-Montes and Alto Douro, Vila Real, Portugal; 2. Hospital Veterinário Bom Jesus, Braga, Portugal; 3. Anicura - Centro Hospitalar Veterinário, Porto, Portugal

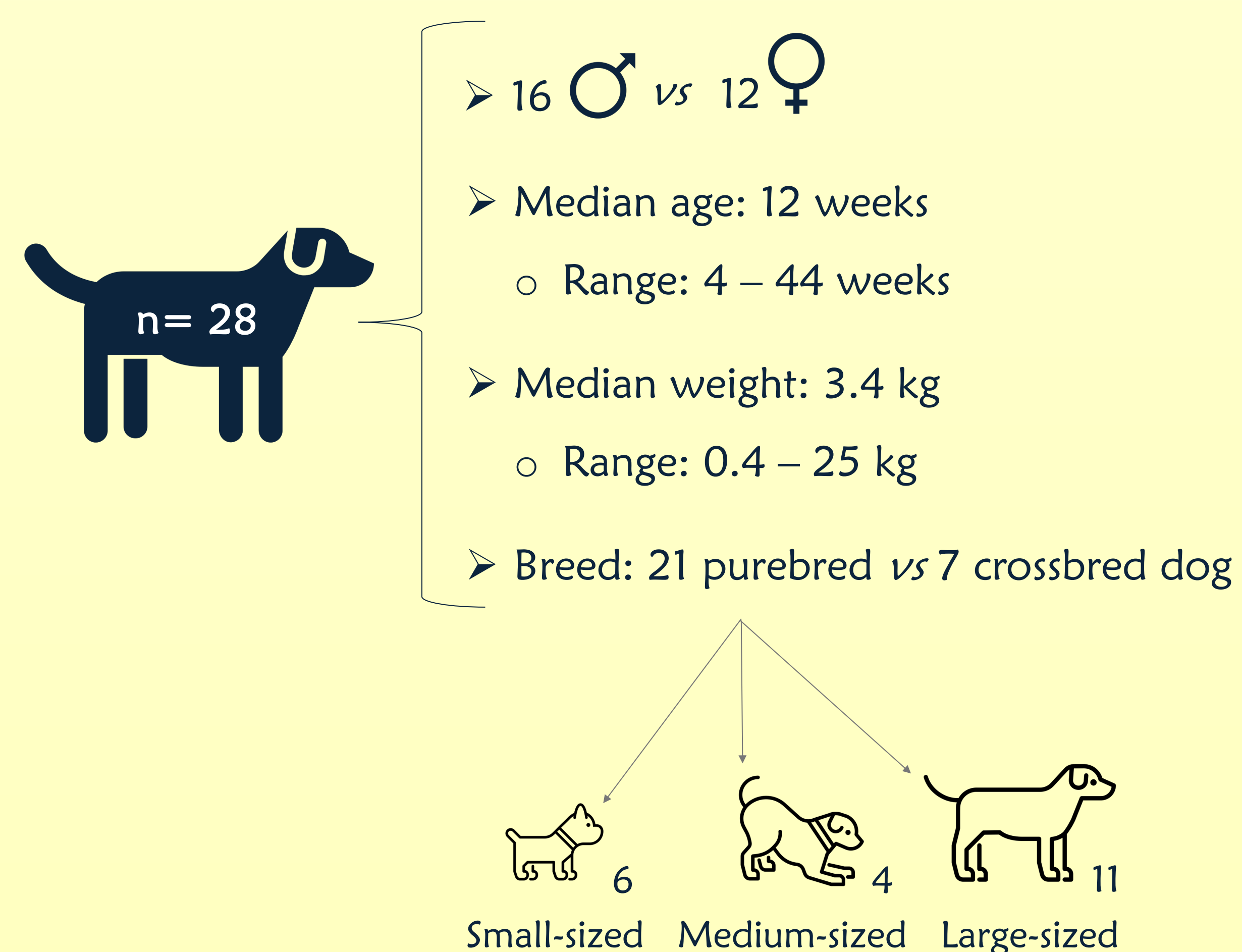
Introduction

Canine infectious gastroenteritis represents a group of diseases that lead to inflammation of the gastrointestinal tract, caused by virus, bacterial, fungal or parasitic agents [1]. In young dogs, canine parvovirus (CPV) is the most diagnosed viral disease and the affected patients show acute onset signs, such as vomiting, hemorrhagic diarrhea, lethargy and anorexia. Hypovolemia, hypoglycemia, neutropenia, hypoalbuminemia and sepsis are severe potential complications identified in the course of this life-threatening disease. Standard treatment includes fluid therapy, broad-spectrum antibiotics, antiemetics, gastroprotective drugs and enteral nutrition support [2]. Fresh frozen plasma (FFP) transfusion may benefit these patients, as it is a rich source of albumin and immunoglobulins [3], although its use remains controversial in critically ill animals [4]. The aim of this study was to describe the use of fresh frozen plasma transfusion in a juvenile canine population diagnosed with acute infectious gastroenteritis.

Methods

- *Study design:* Retrospective
- *Inclusion criteria:* Dogs up to 12 months of age diagnosed with acute infectious gastroenteritis and treated with plasma transfusion in addition to the standard treatment
- *Data source:* Clinical database of two veterinary referral hospitals (Hospital Veterinário Bom Jesus and Anicura - Centro Hospitalar Veterinário)
- *Time period:* 2015 – 2020
- *Population information:* patient features (age, sex, breed, weight and size); clinical signs at admission (hematochezia, fever and signs of systemic inflammatory response syndrome [SIRS]); and initial blood test results (serum albumin concentration and nadir neutrophil count)
- *Plasma transfusion description:* median plasma dose and adverse effects
- *Clinical outcomes:* hospitalization time and survival time for surviving and nonsurviving patients, respectively

Results



Clinical signs at admission

- 75% showed hematochezia (n=21)
- 57% showed fever (n=16)
- 46% showed signs of SIRS (n=13)



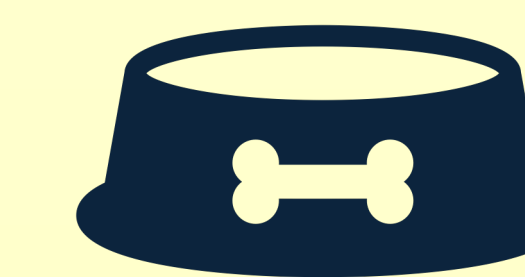
Initial blood test results

- 71% showed hypoalbuminemia (n=20)
- Median nadir neutrophil count: $0.6 \times 10^9/L$
 - Range: $0.1 - 4.5 \times 10^9/L$



Fresh frozen plasma transfusion

- Median plasma dose: 10 ml/kg
 - Range: 4.7 – 50 ml/kg
- No adverse reactions described



Recovery and Survival

- 18 dogs recovered clinically and were discharged
- 10 dogs did not recover and died
- Mortality rate = 35.7%



Hospitalization time (surviving patients)

- Median: 8 days
 - Range: 3 – 16 days



Survival time (nonsurviving patients)

- Median: 4 days
 - Range: 1 – 5 days

Conclusion

Fresh frozen plasma transfusion was a safe therapeutic approach with no reported adverse reactions, but the mortality rate was considered high. Although this result may have been biased by the severity of the disease in these animals, prospective randomized controlled trials are still needed to ascertain the therapeutic benefit of plasma transfusion in juvenile dogs diagnosed with acute infectious gastroenteritis.

References

1. Trotman TK. Gastroenteritis. *Small Animal Critical Care Medicine* 2015;622-626.
2. Mazzaferro EM. Update on Canine Parvoviral Enteritis. *Vet Clin North Am Small Anim Pract* 2020;50:1307-1325.
3. Logan JC, Callan MB, Drew K, et al. Clinical indications for use of fresh frozen plasma in dogs: 74 dogs (October through December 1999). *J Am Vet Med Assoc* 2001;218:1449-1455.
4. Beer KS, Silverstein DC. Controversies in the use of fresh frozen plasma in critically ill small animal patients. *J Vet Emerg Crit Care (San Antonio)* 2015;25:101-106.

Institutions

