International Journal of Veterinary Sciences and Animal Husbandry 2026; SP-11(1): 120-124

ISSN: 2456-2912
NAAS Rating (2026): 4.61
VET 2025; SP-11(1): 120-124

www.veterinarypaper.com
Received: 19-11-2025
Accepted: 29-12-2025

R Sokkalingam
Ph.D., Scholar, Department of Veterinary Clinical Medicine, Madras Veterinary College, TANUVAS, Chennai, Tamil Nadu, India

P Selvaraj
Professor, Department of Veterinary Clinical Medicine, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, India

David Karunyakaran H
Ph.D., Scholar, Department of Veterinary Clinical Medicine, Madras Veterinary College, TANUVAS, Chennai, Tamil Nadu, India

S Rajalakshmi
Veterinary Surgeon, New Cornerstone Multispeciality Pet Clinic, Choolai, Chennai, Tamil Nadu, India

R Ramanathan
Veterinary Surgeon, New Cornerstone Multispeciality Pet Clinic, Choolai, Chennai, Tamil Nadu, India

Corresponding Author:
P Selvaraj
Professor, Department of Veterinary Clinical Medicine, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamil Nadu, India

Role of human granulocyte stimulating factor in the management of feline panleukopenia infections in domestic cats of Chennai

R Sokkalingam, P Selvaraj, David Karunyakaran H, S Rajalakshmi and R Ramanathan

DOI: https://www.doi.org/10.22271/veterinary.2026.v11.i1Sb.2956

Abstract
Feline Panleukopenia Virus (FPV) infects felids via fecal-oral route, causing > 90% kitten mortality. In 18 PCR-confirmed cases, cats were grouped (N=6): Group 1 (Filgrastim), Group 2 (conventional: ceftriaxone-tazobactam 20 mg/kg + Vetplasma), Group 3 (combination). Signs included vomiting, diarrhoea, anorexia, leukopenia, neutropenia, thrombocytopenia, elevated creatinine/AST, reduced protein (p<0.001). Combinatory therapy (Group 3) yielded fastest haematology/serum recovery vs. others (p<0.001), controlling secondary infections and dehydration. Filgrastim alone was ineffective. Vaccination is recommended for prevention.

Keywords: Feline Panleukopenia, Filrastim, VetPlasma, Vaccination

Introduction

Overview

Feline panleukopenia virus (FPV) infects all felids as well as raccoons, mink and foxes. This pathogen may survive in the environment for several months and is highly resistant to some disinfectants.

Infection

Transmission occurs via the faecal-oral route. Indirect contact is the most common route of infection, and FPV may be carried by fomites (shoes, clothing), which means indoor cats are also at risk. Intrauterine virus transmission and infection of neonates can also occur.

Disease signs

Cats of all ages may be affected by FPV, but kittens are most susceptible. Mortality rates are high, over 90% in kittens. Signs of disease include diarrhoea, lymphopenia and neutropenia, followed by thrombocytopenia and anaemia, immunosuppression (transient in adult cats), cerebellar ataxia (in kittens only) and abortion.

Diagnosis

Feline panleukopenia virus antigen is detected in faeces using commercially available test kits. Specialised laboratories carry out PCR testing on whole blood or faeces. Serological tests are not recommended, as they do not distinguish between infection and vaccination. Haematological examination revealed mild leukocytosis accompanied by mild neutrophilia and eosinophilia history of cough, weight loss, anorexia, nasal discharge, enlargement of the abdomen and restlessness. On clinical examination of the animal, dyspnoea and pyrexia were observed. Haemato-biochemical investigations revealed anemic changes and elevation in liver enzymes namely Alanine Amino Transferase (ALT) and Alkaline Phosphatase (ALP) and reduction in serum electrolytes. Supportive therapy and good nursing significantly decrease mortality rates.

In cases of enteritis, parenteral administration of a broad-spectrum antibiotic is recommended. Disinfectants containing sodium hypochlorite (bleach), peracetic acid, formaldehyde or sodium hydroxide are effective. We are divided into three groups

- **Group 1:** Filgrastim therapy group.
- **Group 2:** Conventional therapy group.
- **Group 3:** Filgrastim and conventional combinatory therapy group.

Clinical outcomes were assessed and presented

The data obtained were subjected to statistical analysis

All cats, including indoor cats, should be vaccinated. Two injections, at 8-9 weeks of age and 3-4 weeks later, are recommended, and a first booster 1 year later. A third vaccination at 16-20 weeks of age is recommended for kittens from environments with a high infection pressure (cat shelters) or from queens with high vaccine-induced antibody levels (breeding catteries). Subsequent booster vaccinations should be administered at intervals of 3 years or more. Modified-live virus vaccines should not be used in pregnant queens or in kittens less than 4 weeks of age.

Material and Methods

Cats were screened for clinical signs of Feline panleukopenia, suspected cats will be subjected detailed clinical examination and clinical samples will be collected for diagnosis of feline panleukopenia. Feline panleukopenia was confirmed using standard laboratory diagnostic techniques involving antigen and the hematological and serum biochemical changes in cats. Selected confirmed cases were taken for treatment trial with following group

- **Group 1:** Filgrastim therapy group.
- **Group 2:** Conventional therapy group
- **Group 3:** Filgrastim and conventional combinatory therapy group.

Clinical outcomes were assessed and presented the data obtained were subjected to statistical analysis

Results and Discussion

In this study, a total of 18 cats were found positive for FPV by antigen detection by PCR (Figure 2), (Zhang *et al.*, 2019) [4]. All the 18 cats were divided into three groups of six animals. Then each groups were allotted the treatments as per the methodology.

Clinical signs such as vomiting, diarrhoea and anorexia were the prominent signs observed in this study (Mochizuki *et al.*, 1996) [1]. Cats recovered much early with filigrastim and conventional therapy (Figure 1 represent cats with Feline panleukopenia)

Hematology and serum chemistry values showed significant changes. Hb, PCV, RBC, WBC and Platelets showed marked reduction (p-value: 0.001) in hematology (Figure 6, 7 and 8). Creatinine and AST showed significant elevation in serum chemistry values and Total protein showed significant reduction in serum chemistry (p-value 0.001), (Figure 3, 4 and 5), (Zenad *et al*., 2020) [3].

Statistical analysis showed a significant response to Filgrastim, and conventional combinatory therapy compared to lone filgrastim therapy and conventional therapy (p-value 0.001). This is because of the efficacy of antibiotic (Ceftriaxone tazobactum: 20 mg/ kg body weight) to prevent secondary bacterial infections and fluid therapy with colloid solution (Vetplasma) which could control the osmotic balance in circulation.

Filigrastim with conventional therapy provided fast recovery in hematology and serum chemistry values. Filgrastim lone treatment showed a poor response as it could not control secondary bacterial infection and dehydration (Rice, 2017) [2].

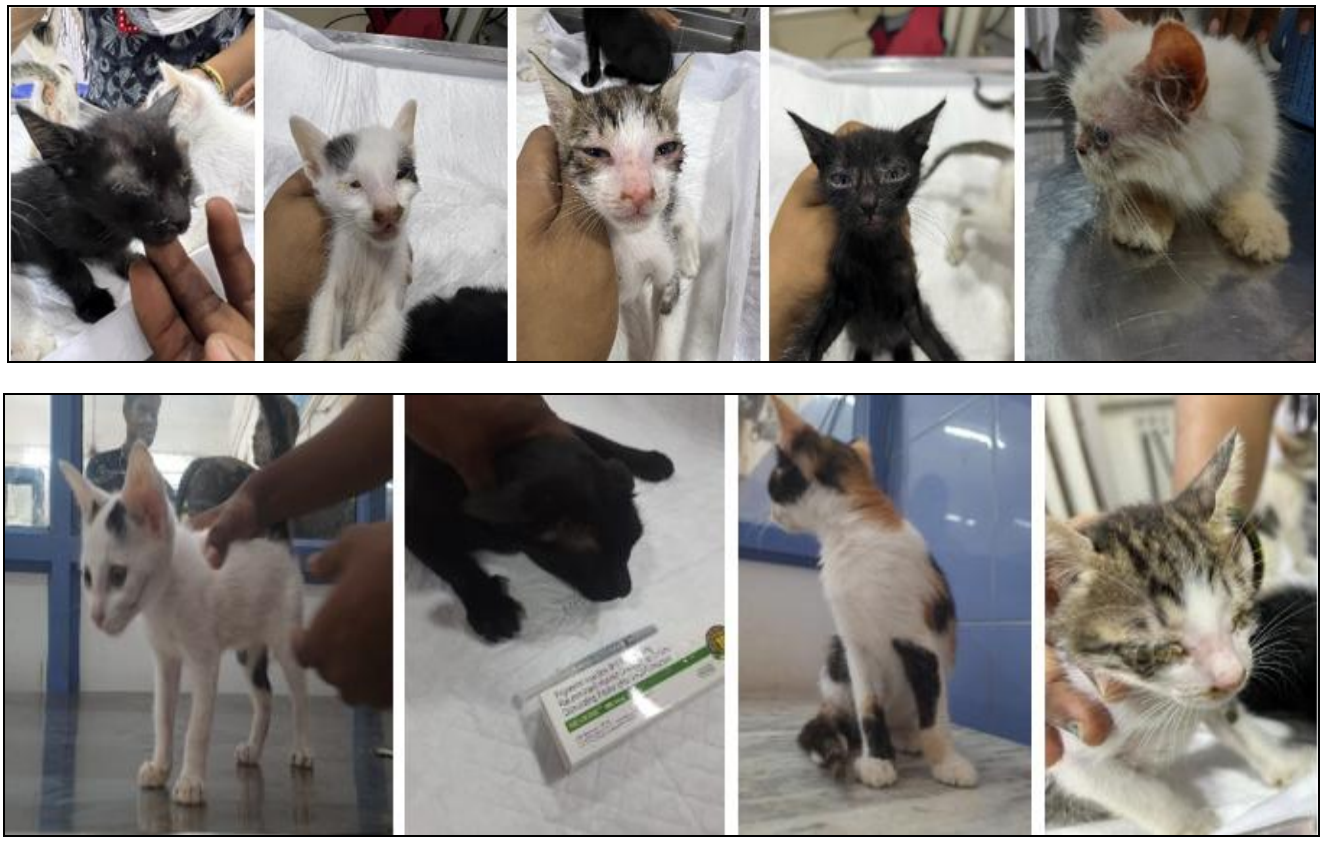

Fig 1: Cats affected with FPV

Fig 2: PCR results

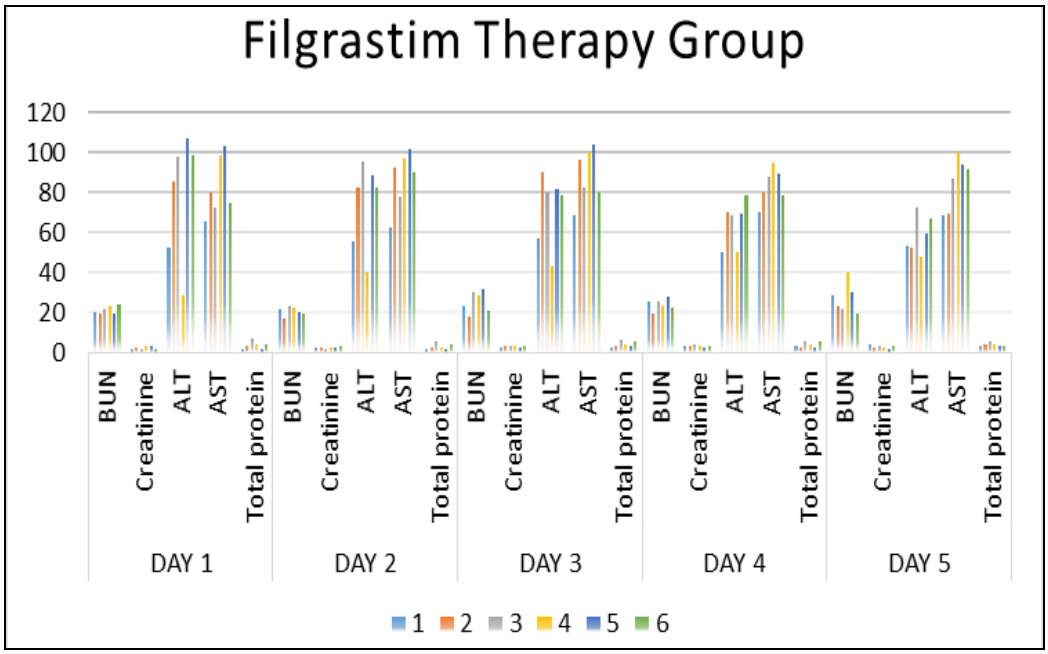

Fig 3: Serum chemistry response of FPV with lone filgrastim therapy

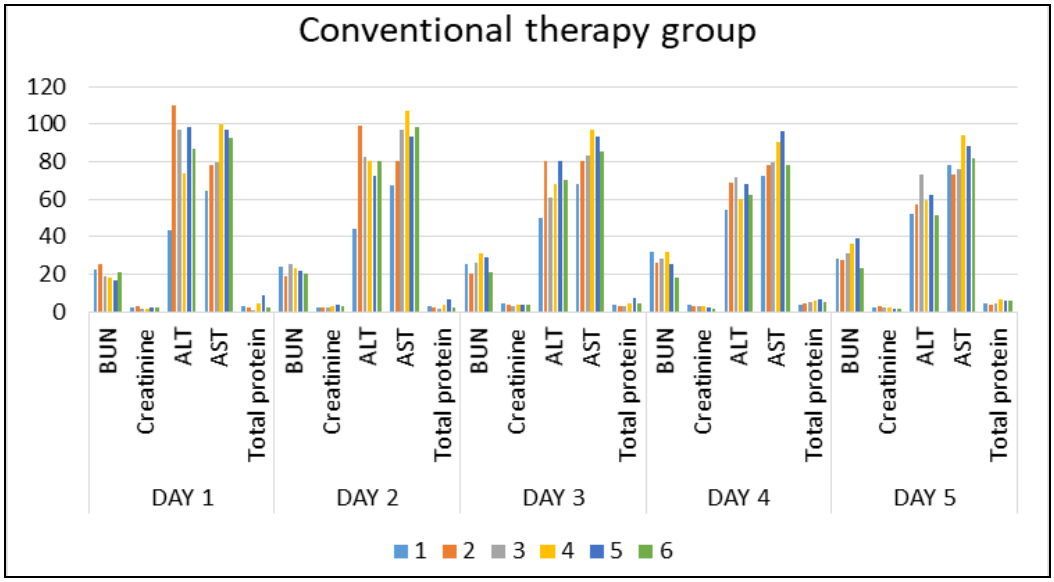

Fig 4: Serum chemistry response of FPV with conventional therapy

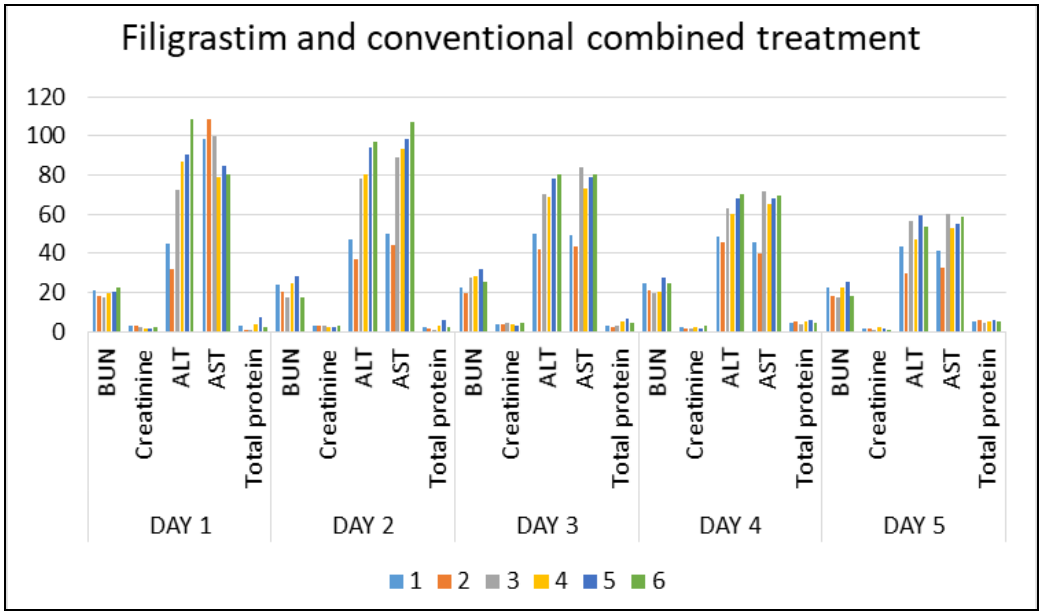

Fig 5: Serum chemistry response of FPV against Filgrastim and conventional combined treatment

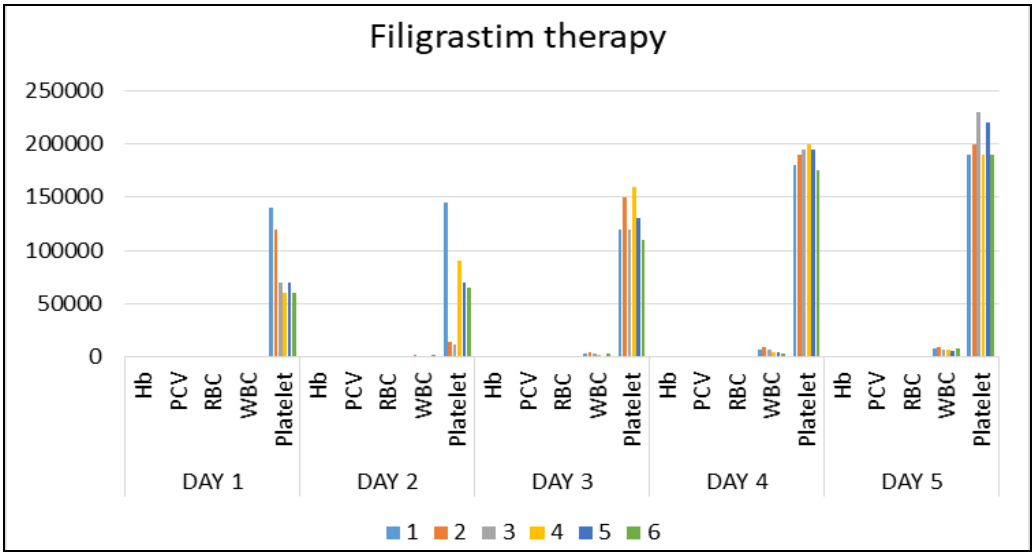

Fig 6: Hematological response of FPV against filigrastim therapy

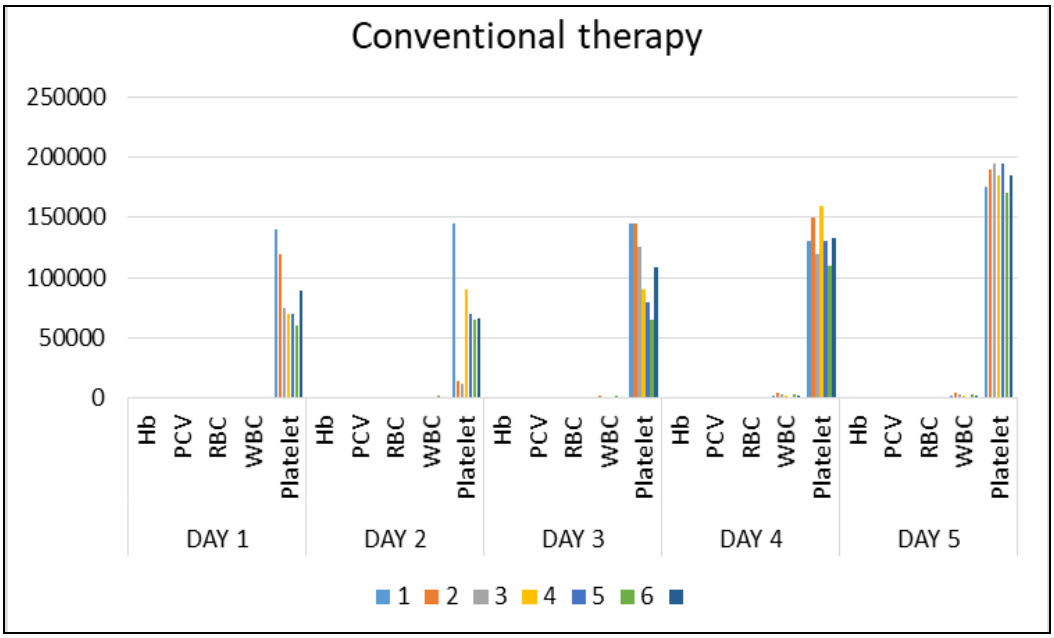

Fig 7: Hematological response of FPV against conventional therapy

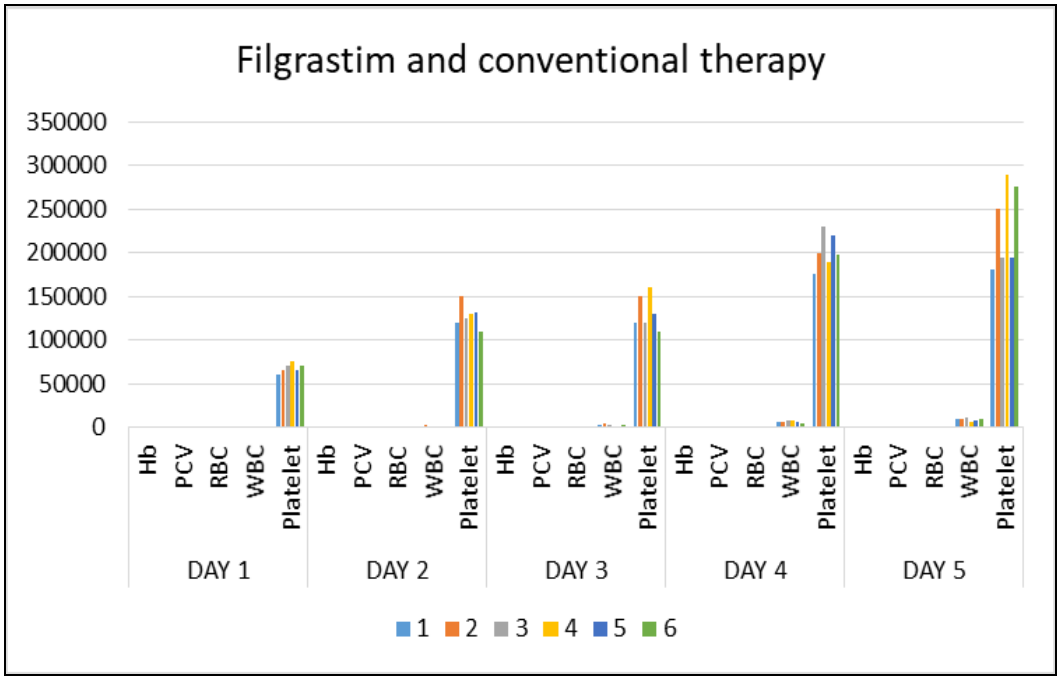

Fig 8: Hematological response of FPV against filigrastim and conventional therapy

Conclusion

This study demonstrates that feline panleukopenia virus infection causes severe clinical, hematological, and biochemical alterations with high mortality, particularly in kittens. Among the evaluated treatment protocols, the combination of filgrastim with conventional therapy proved significantly more effective than either approach alone, resulting in faster recovery of hematological and serum biochemical parameters and better control of secondary infections and dehydration. Filgrastim as a sole therapy showed limited benefit, highlighting the importance of supportive and antimicrobial management. These findings have practical relevance for improving clinical outcomes in FPV-affected cats. Future studies with larger sample sizes and varied dosing regimens are warranted to optimize treatment protocols and further reduce FPV-associated mortality.

Conflict of Interest

Not available

Financial Support

Not available

Reference

1. Mochizuki M, Horiuchi M, Hiragi H, Gabriel SMC, Yasuda N, Uno T. Isolation of canine parvovirus from a cat manifesting clinical signs of feline panleukopenia. J Clin Microbiol. 1996;34(9):2101.
2. Rice JK. Successful treatment of feline panleukopenia: A guideline for rescuers and veterinarians, part I. J Vet Sci Med Diagn. 2017;6:2.
3. Zenad MM, Radhy AM. Clinical, serological and antigenic study of feline panleukopenia virus in cats in Baghdad, Iraq. Iraqi J Vet Sci. 2020;34(2).
4. Zhang Q, Niu J, Yi S, Dong G, Yu D, Guo Y, *et al*. Development and application of a multiplex PCR method for the simultaneous detection and differentiation of feline panleukopenia virus, feline bocavirus, and feline astrovirus. Arch Virol. 2019;164:2761-2768.
5. Clinical and laboratory findings in cats naturally infected with Feline Panleukopenia Virus; 2026.
6. Conti V, Migliorini F, Pilone M, Barriopedro MI, Álvarez RJJ, *et al*. Right heart exercise-training-adaptation and remodelling in endurance athletes. Sci Rep. 2021;11(1):22532. DOI: 10.1038/s41598-021-02028-.
7. Araujo DAJS, Santos DACV, Souza DSK, Aires MB, *et al*. Resistance training controls arterial blood pressure in rats with L-NAME-induced hypertension. Arq Bras Cardiol. 2013;100(4):339-46.

How to Cite This Article
Sokkalingam R, Selvaraj P, Karunyakaran DH, Rajalakshmi S, Ramanathan R. Role of human granulocyte stimulating factor in the management of feline panleukopenia infections in domestic cats of Chennai. International Journal of Veterinary Sciences and Animal Husbandry. 2026;SP-11(1):120-124.