

TREATMENT ASSESSMENT AND DISEASE EVOLUTION OF 27 DOGS SUFFERING OF GASTROINTESTINAL DISORDERS – RETROSPECTIVE STUDY

Razvan Nicolae MALANCUS*

Department of Physiology and Pathophysiology, University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania.
e-mail: razvanmalancus@gmail.com

Abstract

Gastrointestinal disorders are the main cause for dog owners to present to clinicians given the variety of symptoms expressed by the patients and also the discomfort caused to the animal. The study tried to assess the treatment and evolution of the disease over the course of 3 different revisits, each revisit taking place after four to six weeks from the previous visit. The study was conducted over a period of 3 years, between 2011-2014, on 27 dogs of different ages and breeds, all suffering of gastrointestinal disorders. To reach the goals of the research, all the patients were given drugs that fall into the following categories: corticosteroids, non-steroidal drugs, protective, H₂ antagonists, antibiotics, anti-parasitic and other drugs (vitamins, electrolytes, glucose, etc.), while the evolution of the disease appreciated if the patients have completely (no disease symptoms) or partially (not all initial symptoms expressed) recovered, or the treatment was ineffective and the dogs did not recover at all. The results showed that most of the patients responded to treatment after the second revisit (85%), while after the third revisit, just one patient did not improve its health condition (3,7%). At the beginning of the study, serum total protein, albumin and globulin have been determined. In the present research work, we assessed the treatment of gastrointestinal disorders and the disease outcome that depends on the establishment of an appropriate treatment scheme.

Keywords: dogs, evolution, gastrointestinal disorders, treatment

Introduction

Numerous studies tried to assess the outcome of gastrointestinal diseases based on the medication that has been used to treat those conditions.² The present study tried to assess the effectiveness of different pharmaceutical products in inflammatory gastrointestinal disorders in dogs and observe the factors that can influence treatment outcome.

The starting hypothesis of the study stated that there are no significant correlations between the serum total proteins value and the outcome of the disease over a period of three different revisits to the clinician.

Material and methods

The study has been undertaken at Liverpool University, between 2011-2014 on 27 dogs presented with gastrointestinal disorders. In order to assess the origin of disorder, beside physical examination and biochemistry profile (total proteins, albumins, globulins), ultrasound imaging examinations were performed.³

The inclusion criteria for this study stated that all the dogs referred by their practitioner presented signs of gastrointestinal inflammatory processes (vomiting, diarrhea, weight loss, protein losing enteropathy) and the gastrointestinal disease had been confirmed by ultrasound examination.⁴

Twenty-seven cases met de inclusion criteria, represented by 16 males and 11 females. There were 8 nurtured males and 7 spayed females, with a median age for males of 7.1 years (range 0.8 – 12.1 years old) and of 6.2 years (1.4 – 11.8 years old) for females. The median weight was kg, with a range between 3.3 and 49.2 kg. The most represented breeds were German Shepherds (6/27), common breed dogs (6/27) Labrador Retrievers (4/27) and Cocker Spaniels (4/27). Other breeds examined in the study included Boxers, Yorkshire Terriers, Staffordshire Bull Terriers, Poodles and Huskies.

Laboratory data included determination of serum total proteins (TP), albumins and globulins.

Ultrasound examination used a Logiq 5 ultrasound machine with probes that have a frequency between 5 and 12 MHz. Ultrasound examination tried to assess the changes in echogenicity of the stomach and intestines, changes in wall thickness, wall layering and presence of striations or / and speckles (hyperechoic structures along intestinal mucosal layer) in order to include in this study only the patients with inflammatory lesions^{3, 4, 5}.

All the drugs that have been administered to the patients fell into the following categories: corticosteroids, non-steroidal drugs, protective, H₂ antagonists, antibiotics, anti-parasitic and other drugs (vitamins, electrolytes, glucose, etc.), while the evolution of the disease appreciated if the patients have completely (no disease symptoms) or partially (not all initial symptoms expressed) recovered, or the treatment was ineffective and the dogs did not recover at all. The study tried to assess the evolution of the disease over the course of 3 different revisits, each revisit taking place after four to six weeks from the previous visit.

Population characteristics such as weight and age were reported as medians and ranges. The gathered data has been statistically interpreted by two-tailed Fishers Exact Test to assess any significant correlations that would occur during the study.

Results and discussions

Treatment assessment and evolution of the disease has been observed over a period of approximatively 3 months (three successive revisits) and showed how the patients were managed throughout this period of time. Of 27 dogs suffering of gastrointestinal disorders, after the first revisit, we noticed that just 2 patients had totally recovered, while 16 presented a remission of the main symptoms. The rest of nine cases did not show any significant improvement.

The second revisit did not reveal significant changes in the evolution of the disease for the studied individuals, the only changes that occurred relating to a more pronounced shift from the patients which did not recover at all to the group of partially recovered patients. Thus, 2 dogs recovered completely, 21 did recover partially, while the remaining 4 cases did not manifest any improvements in the general health condition of the dogs.

The most significant changes were observed after the third revisit, when 8 dogs completely recovered, 18 dogs recovered just partially and in one case, no improvements have been observed.

As observed in figure 1, there is a visible improvement in the condition of the patients between the second and third revisit.

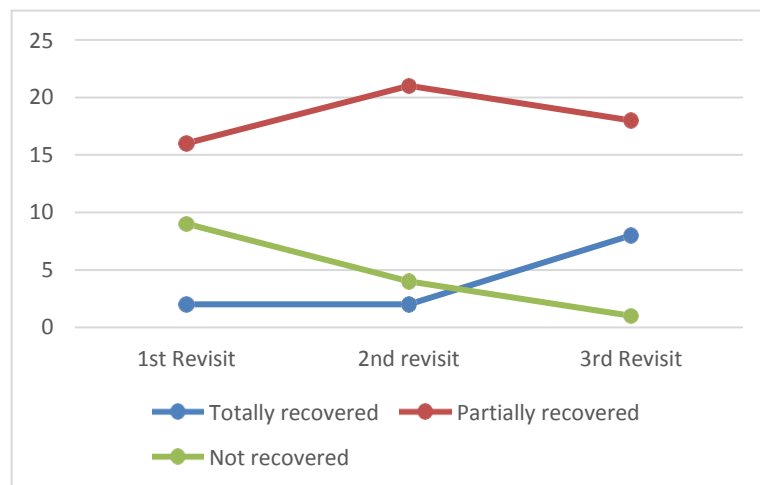


Fig.1. Evolution of the recovery process throughout the studied period

Table 1 reveals how the patients responded to the treatment and the evolution of the recovering process. Two cases showed a drop in their recovering process, with a negative variation between successive revisits.

Table 1.

Response to treatment for all revisits that have been performed

Case number	1 st Revisit			2 nd Revisit			3 rd Revisit		
	TR	PR	NR	TR	PR	NR	TR	PR	NR
1		x			x			x	
2			x		x			x	
3		x			x			x	
4		x			x			x	
5		x			x			x	
6	x			x			x		
7		x			x		x		
8	x			x			x		
9		x			x		x		
10			x		x			x	
11		x			x			x	
12		x			x			x	
13		x			x			x	
14		x			x			x	
15		x			x			x	
16			x		x			x	
17		x			x				x
18		x				x		x	
19			x		x		x		
20			x			x		x	
21			x			x		x	
22		x			x			x	
23		x			x		x		
24		x			x			x	
25			x			x	x		
26			x		x		x		
27			x		x			x	

TR - totally recovered; PR - partially recovered; NT - not recovered

Eleven cases responded immediately to treatment but then their recovery stagnated, the symptoms not being completely eradicated. Other 2 dogs responded very well to the treatment, completely recovering after the first revisit and maintaining their health status throughout the investigated period of time. Just in one case we observed that the animal completely recovered after the third revisit, even though, prior to that one, no improvements have been observed.

In order to assess the evolution of treatment compared to the initial stage, total protein value has been determined for all patients (table 2). It can be noticed that 7 out of 8 patients that have completely recovered had initial values for TP less than 40, while in the group of patients that have not recovered or have just partially recovered, of 19 dogs, 12 dogs had values higher than 40 (63,2%).

Table 2.

Final evaluation of the patients and initial total protein (TP) values

Case number	Final evaluation (3 rd Revisit)			Value	
	TR	PR	NR	TP	Albumin
1		x		25.977	14.513
2		x		68.395	29.118
3		x		42.414	18.197
4		x		27.426	18.256
5		x		43,138	26,576
6	x			60.897	32.077
7	x			33.293	15.379
8	x			27.525	13.933
9	x			29.786	16.294
10		x		53.803	31.495
11		x		33.925	14.660
12		x		48.391	24.046
13		x		34.241	18.564
14		x		41.345	19.168
15		x		39.300	22.972
16		x		36.464	13.461
17			x	31.444	17.430
18		x		58.319	29.083
19	x			37.840	17.221
20		x		61.198	31.291
21		x		49.476	27.300
22		x		60.586	32.593
23	x			33.077	20.134
24		x		56.036	29.768
25	x			32.013	15.231
26	x			40.001	16.009
27		x		59,209	27,892

The obtained results reveal a progressive recovery for all the individuals taken into study. Considering the subjects which improved their health condition, after the first visit 66.7% of the dogs recovered completely or partially, after the second visit 85.2% of the patients got significantly better, while after the third visit, 96.3% of the studied cases showed an improvement in their health condition. It is important to note that the patient that did not reveal any significant changes in the way its disease manifested after the third revisit, had responded to treatment after the first and second revisits to the clinician showing either a therapeutic error or a chronic evolution of the disease with a collapse response from the patient¹. Usually, the patients tend to respond to the first therapeutic measures taken by the clinician and then manifest again the expressed symptomatology². Another variation in response has been observed in a dog which had a fast recovery then a drop in its response to treatment, before it slightly improved its condition again.

The most important changes observed were due to sustained treatment measures, that allowed that almost 30% (29.6%) of the cases to recover completely after the third revisit, a 400% increase comparing to the first two visits (7.4%). The group of patients that partially recovered did not suffer any significant variation throughout the studied period, the most important changes occurring to the group of patients that completely recovered and the one that did not recover at all.

The evolution of the recovery process shows a continuing fall in the number of cases that

did not improve their condition over three revisits to the clinician and a slow but steady increase in the number of patients that recovered completely, with a sudden rise in the favorable outcome group, after the third visit.

The only case that has not recovered even though after the first two revisits showed an improvement in its condition may be the consequence of corticosteroids long term administration which may have a negative impact on immune response of the patient¹.

Studying the way things evolved compared to the initial values of serum total proteins, a very significant correlation has been observed between the treatment outcome and the initial value of TP. Patients with values below 40 tend to recover faster, while those with values above 40 are prone to slow recovery. This is statistically very significant, with $P=0.0114$, revealing that the outcome of the treatment may also depend on the initial value of serum total proteins.

Conclusions

The study has revealed the most important changes could be observed after the third revisit, due to sustained treatment measures, that allowed almost 30% (29.6%) of the cases to completely recover, revealing a 400% increase comparing to the first two visits (7.4%).

The only case that has not recovered even though after the first two revisits showed an improvement in its condition may be the consequence of corticosteroids long term administration which may have a negative impact on immune response of the patient.

Comparing the outcome of the treatment to the initial values of serum total proteins, a very significant correlation ($P=0.0114$) has been observed. Patients with values below 40 tend to recover faster, while those with values above 40 are prone to slow recovery.

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