

## EFFICACY OF NEOSTIGMINE AND AZITHROMYCIN IN BUFFALOES WITH FUNCTIONAL ILEUS

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### ABSTRACT

Buffaloes presented to the Veterinary College and Research Institute Hospital with achezia were subjected to detailed anamnesis, clinical, haemato-biochemical examinations and ultrasonography. Ten buffaloes with functional ileus were selected by excluding the mechanical obstruction and peritonitis. These animals were administered with neostigmine, azithromycin along with intravenous fluids, streptopenicillin and flunixin meglumine for three days. Improvement in the clinical condition in terms of voiding of dung, resumption of rumination, feed and water intakes were noticed.

**Keywords:** *Bubalus bubalis*, buffalo, ileus, neostigmine, azithromycin

### INTRODUCTION

Gastro intestinal motility could be altered by hypocalcemia, endotoxemia, alkalemia, hyperglycemia, luminal osmolality and high energy diets in ruminants. Different prokinetic drugs had been used to restore the gastro-intestinal

function in dairy cattle (Constable *et al.*, 2012). Neostigmine indirectly stimulated nicotinic and muscarinic receptors and lead to increase in the motility of intestinal tract (Emirleroglu *et al.*, 2011). Prokinetic effect of erythromycin was documented in cattle with abomasal and intestinal emptying disorders in cattle (Freick *et al.*, 2016). The present study was undertaken to assess the combined efficacy of neostigmine and azithromycin in the management of functional ileus in buffaloes.

### MATERIALS AND METHODS

The study was conducted at Veterinary College and Research Institute Hospital, Namakkal. Buffaloes with achezia were subjected to detailed anamnesis, clinical and rumen fluid examinations as per the standard procedures (Cockcroft, 2015). Blood samples were collected from jugular vein using vacutainer tubes from each buffaloes before and after therapy. Haematology included total white blood cell count (WBC), red blood cell count (RBC), haemoglobin (Hb) and packed cell volume (PCV). Serum biochemical analyses included estimation of total protein (TP), albumin, gamma glutamyl transferase (GGT), creatinine kinase

(CK), calcium (Ca), potassium (K), sodium (Na), and chloride (Cl) as per the standard procedures (Thrall *et al.*, 2004). Rectal and trans abdominal ultrasonography were carried out using 2 to 3.5 MHz transducer of MyLab Vet 40 ultrasound scanner (Braun, 2009). Out of twenty buffaloes with achezia, ten adult buffaloes with functional ileus were selected based on clinical and ultrasonographic examinations. These buffaloes were administered with neostigmine (0.02 mg/kg body weight IV) and azithromycin (1.0 mg/kg body weight IV) along with 5% dextrose normal saline (10 ml/kg body weight, IV), ringers lactate (10 ml/kg body weight, IV), procaine penicillin (20,000 IU/kg body weight IM) and flunixin meglumine (1.1 mg/kg body weight IM) for three days. Clinical improvement was assessed in terms of voiding of dung, resumption of rumination, feed and water intake. Data are presented as mean±standard error (Mean±SE). To determine the significance of data difference, before and after therapy, data were analyzed by student pair 't' test. All statistical analyses were performed using SPSS.

## RESULTS AND DISCUSSION

Clinical manifestations in the buffaloes with functional ileus included achezia (100%, 10/10), suspended rumination (100%, 10/10), dehydration (100%, 10/10), tachycardia (70%, 7/10) and ruminal atony (50%, 5/10). Upon rectal examination, empty rectum (90%, 9/10) and distended loops of intestines (20%, 2/10) were palpated. Haematological and biochemical parameters before and after therapy are given in Table 1. There were elevated mean packed cell volume, gamma glutamyl transferase and creatinine kinase levels while mean serum albumin, sodium,

potassium, chloride, calcium and phosphorous levels were decreased than the normal range before the treatment in the buffaloes.

Transabdominal ultrasonography revealed increased diameter of the intestines adjacent to one another with echogenic contents (Figure 1). Similar clinical, haematological abnormalities and ultrasonographic changes were reported by Braun (2009); Constable *et al.* (2017) in cattle with ileus. Clinical improvement was noticed and buffaloes could pass dung and resume to take water in 242.00±33.9 minutes (60 to 360 minutes), 840±62.76 minutes (480 to 1440 minutes) after therapy respectively.

Erythromycin, a motilin receptor agonist was effective prokinetic drug in both calves and adult cattle (Ungemach, 2010). Erythromycin exerted its prokinetic effect by bonding to motilin receptors in the pyloric antrum and proximal portion of the small intestines (Wittek and Constable, 2005). Neostigmine could be used to increase the motility in cows (Constable *et al.*, 2017). These reports supported the beneficial effects of neostigmine and azithromycin in the management of functional ileus in buffaloes.

## CONCLUSION

Buffaloes with functional ileus were successfully treated with neostigmine and azithromycin along with intravenous fluids and flunixin meglumine.

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Table 1. Haemato biochemical values of cows with functional ileus before and after therapy (Mean±S.E.).

S. No	Parameters	Before therapy	After therapy	“t” test
1	Haemoglobin (g/dl)	12.09±0.26	11.83±0.22	5.69*
2	PCV (%)	38.11±1.98	35.00±0.81	7.23**
3	TEC x10 <sup>6</sup> /cumm	5.97±0.20	5.78±0.20	2.22 <sup>NS</sup>
4	TLC x10 <sup>3</sup> /cumm	10.98±0.54	10.07±0.23	4.34**
5	Total protein (g/dl)	7.00±0.29	6.75±0.26	1.20 <sup>NS</sup>
6	Albumin (g/dl)	2.98±0.13	3.09±0.17	0.94 <sup>NS</sup>
7	Calcium (mg/dL)	7.82±0.29	9.09±0.34	4.03**
8	Phosphorus (mg/dL)	4.81±0.53	4.74±0.18	0.16 <sup>NS</sup>
9	Sodium (mEq/L)	104.3±4.3	113.3±2.56	2.69*
10	Potassium (mEq/L)	3.29±0.33	3.81±0.19	2.16 <sup>NS</sup>
11	Chloride (mEq/L)	67.80±6.21	92.40±4.85	7.05**
12	CK (units/L)	406.6±94.67	238.8±52.6	2.39*
13	GGT (units/L)	60.01±6.10	38.70±4.19	4.81**

<sup>NS</sup>Not Significant (P>0.05); \*Significant (P≤0.05); \*\*Highly Significant (P≤0.01)

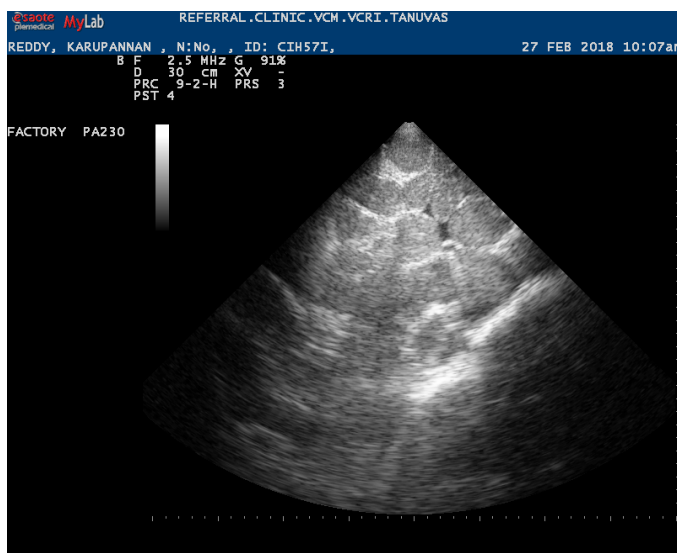


Figure 1. Transabdominal ultrasonography: Increased diameter of intestine with echogenic contents.

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