

Activity of Flunixin Meglumine and Metamizole in a Field Study on 23 horses with colic



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Summary

Increased frequency of colic cases in horses, has determined the interest for a field study on effects obtained by using two commonly veterinary used drugs in the veterinary practice. During one and a half year, between October 2010 and April 2011, 23 colic cases have been seen, and consequently, 13 horses were treated with flunixin meglumine (Cronyxin®), a NSAID from the fenamates group, and 10 were treated with metamizole (Vetalgin®) a non-steroidal anti-inflammatory drug. For both drugs, has been used the maximum permitted dose. All treatments were administered intravenously; in some cases the treatment was repeated. The results obtained from the 23 treated horses revealed that, the time necessary to relieve the symptoms of colic was shorter in horses treated with flunixin meglumine. Time average of total return, ie the absence of any signs of colic, in the case of treatments with flunixin meglumine was of: 17.12 minutes, comparatively with metamizole, where the average was of: 69.5 minutes. In this study the time for colic symptomatic relief was shorter in horses treated with flunixin meglumine than with metamizole. Choosing a drug for colic's treatment is essential. In this respect, the clinical investigation must be followed always by the best chosen therapy, which should be critically evaluated, as part of a competent therapeutic attitude conduit in the field situations

Key words: horse, colic, flunixin meglumine, metamizole.

Materials and methods

Animals

The study period was one and a half year, between October 2010 and April 2011, while were treated 23 horses with clinical colic signs, aging between 2 and 16 years, from private households: 13 horses were treated with flunixin meglumine (Cronyxin®, CEVA Vetpharma) and 10 were treated with metamizole (Vetalgin®, Intervet).

Drug administration

Cronyxin® one millilitre injectable solution contains 50 mg flunixin meglumine. Flunixin meglumine (C₁₄H₁₁F₃N₂O₂C₇H₁₇NO₅, molecular weight: 491.46), is the N-methyl-glucamine salt of 2-(2-methyl-3-(trifluoromethyl-anilino) nicotinic acid), a NSAID from the fenamates group (Fig.1.).



Fig.1. Chemical structure of flunixin meglumine

High analgesic effects with anti-inflammatory and antipyretic properties are given by the interaction of fenamates with cyclooxygenase, which cause inhibition of prostaglandin synthesis. The dose is 1 ml Cronyxin® (1.1 mg flunixin meglumine)/45kg b.w.i.v., once a day and treatments may be repeated for five consecutive days, depending on the evolution of case.

Vetalgin® has as active substance metamizole (C₁₃H₁₇N₃O₄S, molecular weight: 311), a non-steroidal high anti-inflammatory drug (Fig.2.). One millilitre injectable solution contains 500 mg of metamizole-natrium-monohydrate. The active substance is used as an efficient analgesic, antipyretic, antispasmodic, antirheumatic and anti-inflammatory for horses. Dosage and administration was of: 20-50 mg/kg b.w.i.v.

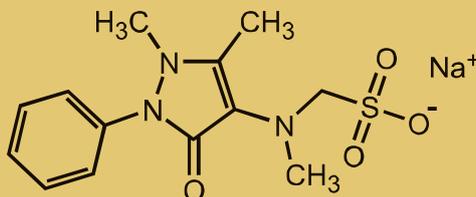


Fig.2. Chemical structure of metamizole sodic salt

Clinical parameters followed: heart and respiratory rate, apparent mucosal and temperature, bowel sounds, transrectal examination. About 50% of identified cases required the use of detomidine clorhidrate (Domosedan®, Pfizer Animal Health), at dose of: 20mg/kg b.w.i.v., as tranquilizers before clinical examination. In three cases it was administered paraffin oil with the naso-gastric tube to ease the gastrointestinal transit. In most of the cases, especially those with no intestinal transit, has been effectuated transrectal examination and in five of those, it was removed significant amounts of sand.

Results and Discussions

In Figure 1, the results obtained from the 23 treated cases are presented. It can be seen that the time necessary to relieve the symptoms of colic in this study was shorter in horses treated with flunixin meglumine.

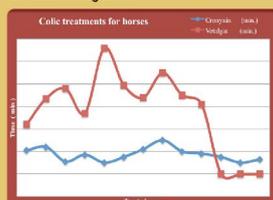


Fig.3. Comparative results obtained from the 23 treated colic cases

Without having a complex study about the intimate colic causes, but only the clinical usual investigation results, in this field study, we presented solely the time until registered symptoms were relieving after treatments and not which of these two substances was the best (Tables 1 and 2).

Table 1. Cases treated with flunixin meglumine

Cases treated with flunixin (i.v.)	Sex	Age (years)	Weight (Kg)	Dosis (ml)	Time(min) (until symptoms relieve)
1	M	4	745	17 ml	10-15
2	M	4	490	11 ml	20-25
3	F	2.5	455	10 ml	15-20
4	F	5.5	320	8 ml	25-30
5	F	5	470	11 ml	10-15
6	F	3	450	10 ml	15-20
7	F	8.5	420	10 ml	10-15
8	F	9	510	11 ml	10-15
9	M	6.5	240	5 ml	10-15
10	F	12	780	18 ml	20-25
11	F	4.5	710	15 ml	15-20
12	F	12.5	480	10 ml	10-15
13	F	16	450	10 ml	20-25

Table 2. Cases treated with metamizole

Cases treated with metamizole (i.v)	Sex	Age (years)	Weight (Kg)	Dosis (ml)	Time(min) (until symptoms relieve)
1	M	11	450	45 ml	40-45
2	F	2	400	40 ml	65-70
3	F	5	470	47 ml	70-75
4	F	2.5	450	45 ml	50-55
5	M	5.5	320	30 ml	100-110
6	M	9	500	50 ml	75-80
7	F	12	750	75 ml	60-65
8	M	8.5	800	80 ml	80-90
9	F	6.5	240	24 ml	65-70
10	F	3	450	45 ml	60-65

Time necessary to take this decision is crucial for horse's welfare. Delaying or postponing an appropriate therapeutic approach, to a patient with intestinal disease can lead to shock caused by endotoxins which cross lesional intestinal mucosa, often ending with death. Duration of pain and its rebel character to drug therapy are often signs that will lead to abdominal colotomy. To obtain good results with drug therapy this should be instituted before the pain becomes severe. In Table 3 are presented a data synthesis after known authors about the animals' history and main colic risk in horses, that should be obtained for reach a correct decision.

Table 3. Correlation between animal history and main colic risk in horses

Animal history	Risk of colic
Feeding	Sudden ration changes, excessive concentrates, rare, abundant rations, long grazing
Behaviour	Spending a long time in the stable, water insufficient access
Training	Intensive & exhausting trainings
Prophylaxis	Periodic teeth care and antiparasitic treatments
Treatment	Long time administration of NSAID's
Recurrent colic	Antecedent surgery

Conclusions

The time for colic symptomatic relief was shorter in horses treated with flunixin meglumine than with metamizole.

Time average of total return, ie the absence of any signs of colic in the case of flunixin meglumine was of: **17.12 minutes**, compared with metamizole, where the average was of: **69.5 minutes**.

In field, the most useful test for diagnosing the type of bowel obstruction is considered the transrectal examination and between parameters derived from clinical examination, heart rate is the most valuable in determining the importance of therapeutic procedures, in colic case under field conditions.

References: 17 titles