

Clinical Trial of Ester-C POLYASCORBATE

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POLYASCORBATE (C-Flex), AN INTERESTING ALTERNATIVE BY PROBLEMS IN THE SUPPORT AND MOVEMENT APPARATUS IN DOGS

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PRELIMINARY DISCUSSION

Ever since Dr Lind in the year 1740 discovered that juice from citrus fruits could prevent scurvy in sailors, Vitamin C has had a natural place in human nutrition.

All species except primates, guinea pigs, certain types of bats, salmon varieties, certain insects and shellfish, have enzyme systems that convert glucose to ascorbic acid¹. Vitamin C has hence received little attention within modern veterinary medicine.

The assumption that animals at all times are capable of producing sufficient quantities themselves is, however, probably not a valid one.

Ascorbic acid plays a role in a large number of biochemical reactions in the metabolism of collagen and in the immune system as well as in a series of redox reactions.

Also metabolites of Vitamin C are reactive components. Today's research gives these substances the attention they deserve. The conversion of ascorbic acid into these metabolites is believed to be dependent on the intracellular ascorbic acid concentration. Under certain circumstances, like

infections, traumatic, or physical stress, larger amounts of ascorbic acid and its metabolites are being consumed by various tissues.

Under these conditions, it is very well possible that the animal's own production cannot cope with the demand of supplying all tissues with optimal levels of ascorbic acid.

Ascorbic acid is an acidic, water soluble molecule which after ingestion is very rapidly excreted through the kidneys. Ascorbic acid has pka 4.17.

The ideal Vitamin C would be a pH neutral molecule that would not cause irritation to the gastro-intestinal tract, that is rapidly absorbed from the gut, that is more slowly excreted, and that has the ability to cross cell membranes in a more efficient way than does ascorbic acid, so that higher intercellular levels can be reached.

Such a Vitamin C (classified as a polyascorbate) has been developed and patented by Inter-Cal Corporation of Prescott, Arizona, under the trademark C-Flex.

Polyascorbate is a complex mixture of calcium ascorbate molecules and the above mentioned metabolites. In water solution the polyascorbate is pH neutral, which influences the osmolarity in

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the intestinal tract less than does ascorbic acid, which has a pH 2.4. It is absorbed faster in both animals and humans.

Furthermore, slower excretion and higher intracellular concentrations are achieved. Clinical studies suggest that the metabolites created during C-Flex's unique manufacturing process are of vital importance in its increased ability to penetrate cell membranes and thus give higher intracellular ascorbate absorption.

Robert Davis, Ph.D., at the Pennsylvania College of Podiatric Medicine, observed that polyascorbate lessened both symptoms of pain and stiffness in arthritis patients.⁵

Indications of similar effects in dogs were found by Charles Dockter, DVM, in Prescott, Arizona.⁵ It is assumed that the metabolism in support bone and tissue is being stimulated and optimised.

The target for this study was to observe the effect of the polyascorbate in dogs with clinical

symptoms of chronic inflammation processes in joints, skeleton and muscles, as routinely treated with antiphlogistics and corticoids.

MATERIALS AND METHODS

The study was carried out at Groruddalen, Dyreklinikk, over a six-month period in 1988. One hundred (100) dogs of different breeds and ages were given C-Flex approximately 30 mg/kg bodyweight three (3) times a day orally.

All treatments were given because owners saw the animals' symptoms of limping, lameness, limited movement ability and pain. Diagnosis was made on the basis of journals, clinical evaluation and, if necessary, X-Ray. The effect was measured as changes in symptoms partly by new clinical assessment and partly by owners reporting their evaluation of treatment. The effect was measured after seven (7) to ten (10) days, more than six (6) weeks and after approximately six (6) months. A

TABLE 1

Number of dogs showing	Total	Good improvement/ free from symptoms	Small Improvement/ no improvement
After 1 week	100	75	25
6 weeks	100	79	21
Available months	85	65	20

Splitting these numbers after diagnosis gives the following

TABLE 2

Limping/pain from hip dysplasia:

After 1 week	45	32	13
6 weeks	45	35	10

Spondylosis back prolapse:

After 1 week	17	13	4
6 weeks	17	13	4

Arthrosis changes:

After 1 week	38	30	8
6 weeks	38	31	7

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series of both acute and chronic ailments were treated. With acute problems and conditions that rapidly change, it is very difficult to distinguish between effect of treatment and other influential factors. Such patients were therefore excluded from the study. One has hence limited the study to observe the effect of.

- symptoms that have a known cause and that are permanent, and
- where symptoms had been stable over a minimum of six (6) weeks, and
- must be assumed to persist without treatment.

Dogs with the following ailments were included:

- Arthrosis
- Spondylosis
- Hip Dysplasia
- Older disc prolapses with permanent secondary changes
- Senile wear changes in support and movement tissue.

RESULTS

The results of the study are shown in Table 1.

Results related to the different diagnoses are shown in Table 2. No clear variations between the studied ailments were found.

There were no side effects seen during treatment.

C-Flex was administered both as tablets and powder. This did not seem to make a difference in effect.

In agreement with some owners, six (6) dogs with chronic arthrosis were divided into two (2) groups. Group 1 received C-Flex, Group 2 a placebo. After one (1) week all the dogs in Group 1 showed improvement, while no one in Group 2 did. Treatment was postponed for four (4) weeks. Groups 1 this time received the placebo and Group 2 received C-Flex. After one (1) week all the dogs in Group 2 showed improvement and none in Group 1 did. A second crossover was then made with the same results.

CONCLUSION

This study shows an interesting tendency that polyascorbate orally administered gives sympto-

matic relief of chronic deforming changes in the joint and skeleton system in many of these patients.

One realises that it would have been preferable to have larger groups. However, as the treatment seemed to give some clear-cut effects, one deems it appropriate to mention this at this point. Further studies with larger groups are under way.

Polyascorbate should prove to be a good alternative to current treatment of these ailments. Many older dogs showed a general improvement during treatment. That the substance gives effect to all dogs, a species that should be able to produce its own Vitamin C, points in the direction that the dog's own production gives sub-optimal concentration in some tissues under certain conditions.

SUMMARY

A study on the clinical effect of C-Flex on chronic inflammation ailments in the support and movement structures in dogs is present. The mineral polyascorbate form contains significant levels of naturally occurring Vitamin C metabolites. Ascorbic acid and its metabolites play important roles in approximately three hundred (300) metabolic reactions. Clinical studies at Groruddalen Dyreklinikk have demonstrated that polyascorbate has a positive effect on symptoms caused by chronic inflammation in the dog's movement structure. About 75% of the dogs treated showed improvement upon treatment. Further investigations are in progress.

REFERENCES

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