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Chocolate-*Canis Lupus Familiaris*

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Review Article

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ABSTRACT

Canis Lupus Familiaris is known to be the genus, species and species of Dogs. That includes 37 breeds including domestic dogs and stray dogs out of which 9 breeds are the wolves and foxes. As we all know, Dogs have been the man's best friend ever since we knew them. They are known for their faith and unconditional love towards the mankind. They need nothing but our attention and our love of course food also. But, not what all we eat can be fed to them. Yes, you read this right they have some limitations in their diet. That is quite normal to us. Chocolate is one of the most poisonous things for a dog. Let's discuss What? Why and How?

INTRODUCTION

Chocolate contains an alkaloid called "theobromine". Theobromine is in the same family as caffeine and is a sort of stimulant (they both are mythylxanines). Theobromine empowers the focal sensory system, cardiovascular framework, and causes a marginally expands pulse.

What Is Theobromine?

Yes, "THE CHOCOLATE" [1,2] it is usually sweet and gives us pleasure as that of addiction to it. It is made from the seeds of the plant *theobroma cocao.* And chocolate consist of an alkaloid called Theobromine [3-7]. It is only absence a methyl (CH_3) group in the caffeine moiety resulting in the theobromine moiety. Which is $C_7H_8N_4O_2$. 3, 7-Dimethylxanthine [8,9] is an IUPAC name for theobromine which is basically a flavonoid [10-12].

Sequencing of the laboratory mouse genome used to be accomplished in late 2002 making use of the C57BL/6 strain. This used to be only the second mammalian genome [13-15] to be sequenced after humans. The haploid genome is set three billion base pairs long (3,000 Mb distributed over 20 chromosomes), for this reason equal to the size of the human genome [16-19]. Estimating the number of genes contained in the mouse genome is difficult, partly for the reason that the definition of a gene is still being debated and elevated. The current count of main coding genes within the laboratory mouse is 23,139. Compared to an estimated 20,774 in humans [20,21].

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What has theobromine got to do with a dog's health?

Chocolate contains a theobromine which stimulates human brain i.e CNS which in turn results in Strict tachycardia [22-26], and vascular constriction [27]. Dogs, Cats and Horses are incapable metabolise theobromine as quick as humans can. Due to which it causes adverse effects that can be much worse than humans. As dogs are much sensitive to theobromine and caffeine compared to that of Human beings [28-31].

The following conditions can be seen in a dog that has eaten chocolate [32-37]:

Nausea

Vomiting

Seizures

Epilepsy

Muscle Twitching

Excess Urination

Diarrhea

Excessive Panting

Hyperactive Behavior

Whining

Digestive Problems

Dehydration

And increased heart rate can be extremely fatal to dogs and may also cause death.

QUANTITATIVE SYMPTOMS

The Toxicity of the Chocolate in dogs can be calculated and can be treated as per the ratio i.e (mg/kg), which means, if a dog is weighing 5 kilograms and has consumed chocolate in ratios to 20% of that of its body weight ten the toxicity of the theobromine [38-40] or the chocolate is low or less than medium. The following signs can be observed when such amount is ingested by the dog [41-46].

Drooling, Vomiting and Diarrhea where all smell like Choco.

Likewise it is calculated as per the weight and the percentage of the theobromine [47] and the symptoms may vary as follows:

Percentage as per body weight	Symptoms
20 mg/kg	Drooling, Vomiting and Diarrhoea that smell chocolaty
40 mg/kg	Cardiac signs like Arrhythmias, Racing Heart Rate
60 mg/kg	Neurological Signs such as Twitching, Tremors, and seizures
100 mg/kg	This could be dangerous but if treated at the right time, The animal can be saved
200 mg/kg	This is a very fatal one, where the over ingestion of chocolate totally toxifies the body of the animal and will eventually kill it.

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PATHOPHYSIOLOGY

Theobromine and caffeine are expeditiously held from the GI tract and for the most part passed on all through the body. They are metabolized in the liver and experience enterohepatic reusing [48-52]. Methylxanthines are released in the pee as both metabolites and unaltered watchman blends. The half-presences of theobromine and caffeine in puppies are 17.5 hr and 4.5 hr, independently [53-55].

Theobromine and caffeine strongly limit cell adenosine receptors, achieving CNS prompting, diuresis, and tachycardia [54-57]. Methylxanthines also increase intracellular calcium levels by extending cell calcium entry and controlling intracellular sequestration of calcium by the sarcoplasmic reticulum which is related to striated muscle. The net effect is extended quality and contractility of skeletal and heart muscle [58-61]. Methylxanthines may in like manner strive for benzodiazepine receptors inside the CNS and quell phosphodiesterase, achieving extended cyclic AMP levels. Methylxanthines may moreover increase streaming levels of epinephrine and norepinephrine [62].

TREATMENTS AND REMEDIES

They must be kept away from sweets, Sugars and mostly chocolates if isgested the following measures must be taken:

- Try to make the dog swallow some activated charcoal.
- Give him plenty of Water [63-65].
- If he is vomiting, drooling or passing the faeces frequently means that he is able to withstand the toxicity and is excreting it. But, that doesn't mean to leave it there [66-70].
- Take him to the Vet as early as possible.
- Methocarbamol (50-220) mg/kg can be given accordingly to the age and weight of the dog.
- Dosage of the Methocarbamol can be calculated as per Dilling's or Young's formula [71].

Formulae to calculate the dosages of medicines for dogs:

1. Dilling's formula: Dose for a child = (age in years/12) x an adult dose
2. Young's formula: Dose for a child = [age in years/(age + 12)] x an adult dose

CONCLUSION

Conclusion relies on upon history of presentation, close by clinical signs. Amphetamine toxicosis, mom huang/guarana (ephedra/caffeine) toxicosis, pseudoephedrine toxicosis, cocaine toxicosis, and ingestion of antihistamines, antidepressants, or distinctive CNS stimulants should be considered in the differential examination.

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