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Medication for Birth Control in Bitch at Battambang City, Battambang Province, Cambodia

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Abstract: The observation study was conducted in Battambang City, Battambang province, by interviewing the 88 dog owners, who came to the animal pharmacy stores and clinics by using convenience sampling method of nonrandomized sampling. Though the results of the interviews, showed that the dog owners were selected in different range of age and gender, however, most of them were in middle age from 21-40 years old, with medium and rich living wellbeing. The confinement in premise/house was primarily applied by dog owners. The number of bitches per household was from 1 to 3 batches, and there was no association with the wellbeing of the owners, and the age was from 2 to 4 years old, but some bitches had older age. Most of the bitches were dewormed in last 3 months and 6 months, however, there were some bitches last more than 6 months after deworming. The bitch vaccination was applied by owner around for 60.00%. There were two popular types of vaccination, Rabies and DHLPP (Distemper, Hepatitis, Leptospirosis, Parvovirus, and Parainfluenza). For dog population management, about 94.29% of the owners apply nonsurgical method with applying medicine. The reasons for using nonsurgical method were not only the cheapest price and easy way, but also there was no information on the consequence of using medication for birth control. The medication was highly used before heat. But, almost half of them got health problem in less than 3 months after administration, also some got long-term effect. Among clinical signs observed, the enlargement of belly was the most evidence, since 54.76% of affected bitches had shown it, then followed by discharge blood from vulvar, clear discharge and thick white pus from vulvar, accounting for 38.10%, 35.71% and 26.71%, respectively.

Key words: Bitch, vaccination, birth control, clinical signs.

1. Introduction

Dogs were the first species to be domesticated by hunters 15,000 years ago [1]. During 2013, the number of dogs worldwide was estimated at between 700 million [2] and 987 million [3]. About 20% of dogs live in developed countries [4]. In developing countries, most of the dogs living in their homeless lives will never belong to humans, while only a small number are properly cared for [5]. Over the decades, dogs have been bred into a variety of breeds to suit human purposes, such as intuition, physical characteristics, size, color, and behavioral differences. They are used for hunting, animal husbandry, protection, assistance in police and military partnerships, and also treat and assist people with disabilities [6]. What is even more amazing about dogs is that some of them are capable of rescuing and searching [7]. Search dogs are trained to search for illegal drugs 2011 [8]. Dogs are as susceptible to a number of health problems as humans, including diabetes, oral disease and heart disease, epilepsy, cancer, thyroid disease and arthritis [9]. In the meantime, the role of dog to transmit the rabies to human was another concerns in developing country, especially in the rural area. The mass dog vaccination is the main strategy to eliminate the canine-mediated human rabies currently, since there is the most feasible and cost-effective strategy. Besides that, the dog population management is also a key pillar of a successful rabies control strategy [10]. This concept includes the measures that are

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aiming to enhance the health and welfare of dogs with reducing the population size and minimizing the risk to public health, especially rural farmers. Dog population management will contribute to effective rabies control through limitation of the population size of dog for sufficient coverage vaccination [11]. Thus, World Organisation for Animal Health "WOAH" recommended as an integral part of such programs for rabies control [12]. Birth control is the key measure to manage dog population using surgery to remove ovary of female dog and non-surgery method. Non-surgery method is not typically recommended due to the high risk of pyometra in un-spayed female dogs and it is a serious potentially life-threatening condition. Thus, to avoid this problem the removing ovary is recommended [13]. Through the observation, the non-surgical methods by providing drug, PO "Per Os" or injection, are still practiced by dog owners in Cambodia, and may cause the pyometra. Thus, this study is to present the current methods of applying birth control by dog owners and the consequent of contraception pyometra.

2. Material and Method

2.1 Study Area and Period

The sample selection was based on the number of dog-raising households in Battambang City, especially the pet owner went to get service at animal clinic for treatment of their dogs and to buy birth control drug at animal medicine stores. The interview commenced from October 2023 to February 2024.

2.2 Selected Dog Owners

Dog owners were selected based on their willingness to provide information and came to buy medicine for birth control and get services for treatment of their dog with suspecting pyometra, with and without using birth control medication. The convenience sampling of non-random method was applied.

2.3 Data Collection

The questionnaire was the most important tool in collecting data in this research. The questionnaire was designed into questions, including close and open questions, with conducting face-to-face interviewing.

The questionnaire included general information about the owners and the part of contraceptives on dogs by using medication which was the most important data in this study. The total sample size was 70 dog owners.

2.4 Data Management and Data Analysis

The data were collected, recorded and analyzed by using Microsoft Excel for descriptive statistics, and some tools for inferential statistics were used, such as parameter test and non-parameter test.

3. Result

3.1 Demography of Dog Owners

Pet owners were selected in different range of age and gender, however the high percentage was in age categories of 21-25 years old, 25.71%, or in general we can say that mostly the dog owners were in middle age from 21-40 years old (Table 1).

For living condition of dog owners, most of them were in medium (82.86%) and the rest was the rich one (Fig. 1).

3.2 Raising System

Normally, the confined premise/house was primarily applied by dog owners, accounting for 64.29%. However, the raising systems did not associate with living wellbeing of the dog owners (Table 2).

Table 1 Distribution of age and gender for selected sample of dog owners.

Age (year)	Female		Male		Total (%)
	#	%	#	%	
< 21	1	2.04	1	4.76	2.86
21-25	12	24.49	6	28.57	25.71
26-30	9	18.37	4	19.05	18.57
31-35	11	22.45	0	0.00	15.71
36-40	7	14.29	2	9.52	12.86
41-45	2	4.08	4	19.05	8.57
> 45	7	14.29	4	19.05	15.71
Total	49	100	21	100	100

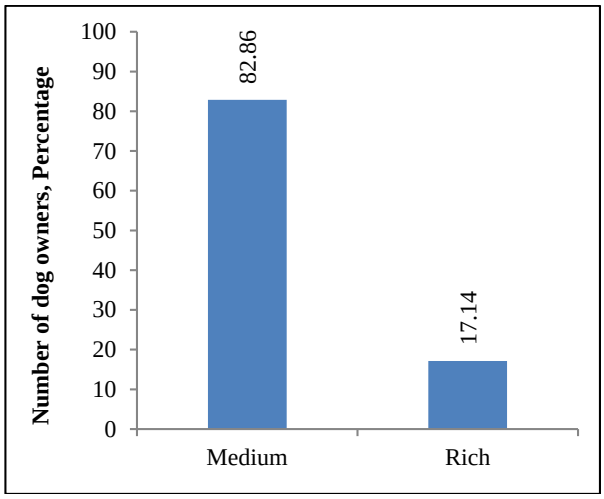

Fig. 1 The wellbeing of dog owners.

Table 2 The association between dog raising system and living wellbeing.

Raising method	Medium (n = 58)	Rich (n = 12)	Total
Confined in pen	12.07	16.67	12.86
Confined in premise	62.07	75.00	64.29
Free roaming	25.86	8.33	22.86
Chi-square value	1.76		-
p value	0.415		-

Table 3 The numbers of bitch per household.

Number of bitch	Medium (n = 58)	Rich (n = 12)	Total
One head	77.59	50.00	72.86
Two heads	15.52	41.67	20.00
Three heads	6.90	8.33	7.14
Chi-square value	4.47		-
p value	0.107		-

The number of bitches per household was from 1 to 3 bitches, and there was no association with the wellbeing of the owners (Table 3).

The majority of bitch age was from 2 to 4 years old followed by 5 to 9 years old accounting for 46.81% and 37.23%, respectively (Fig. 2).

3.3 Health Care

In total, 64.29% of the owners had dewormed their dog and only 28.57% had no deworming, however about 7.14% said that they had no information since their dogs were brought from market or others sources (Table 4).

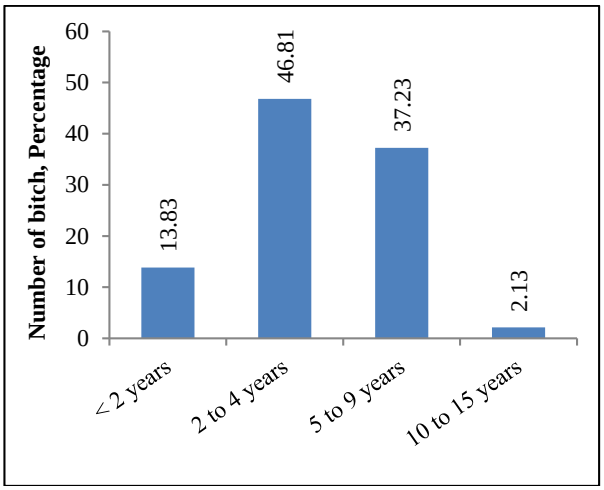

Fig. 2 Age distribution of bitches.

Table 4 Experiencing deworming their dog.

Deworming	Medium (n = 58)	Rich (m = 12)	Total
Yes	62.07	75.00	64.29
No	31.03	16.67	28.57
Don't know	6.90	8.33	7.14
Chi-square value	1.01		-
p value	0.604		-

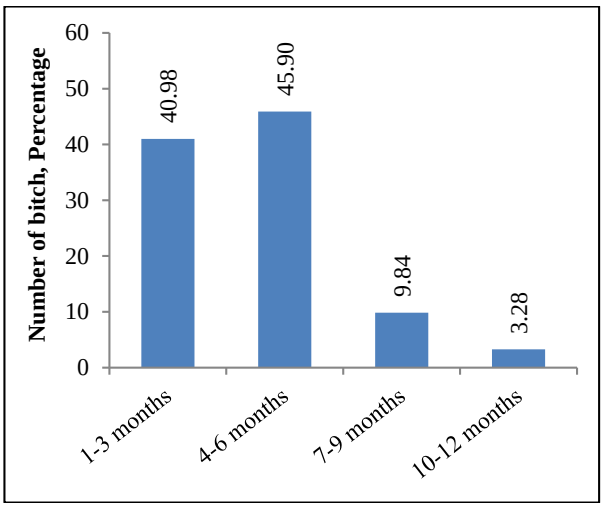

Fig. 3 Last deworming period.

Most of the bitches had dewormed in last 3 months and 6 months, accounting for 40.98% and 45.90%, respectively, however, there were some bitches last more than 6 months after deworming and needed to apply deworming to fully protect (Fig. 3).

The bitch owners around for 60.00% had vaccinated their bitch and 32.86% did not vaccinate and 7.14% had no information (Table 5).

Table 5 The information for vaccination.

Vaccinating	Medium (n = 58)	Rich (m = 12)	Total
Yes	56.90	75.00	60.00
No	36.21	16.67	32.86
Don't know	6.90	8.33	7.14
Chi-square value	1.73		-
p value	0.421		-

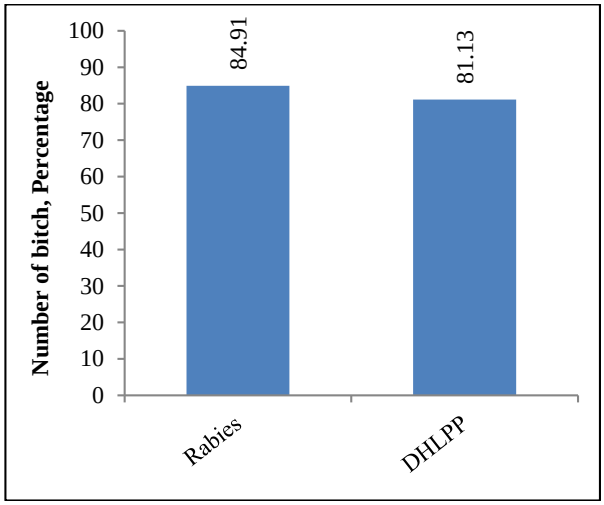

Fig. 4 Type of vaccination used.

There were two popular types of vaccination, Rabies and DHLPP (Distemper, Hepatitis, Leptospi-rosis, Parvovirus, and Parainfluenza), accounting for 84.91% and 81.13% respectively (Fig. 4).

3.4 Birth Control by Medication

Most of the household or bitches used birth control by nonsurgical method with applying medicine, accounting for 94.29% and 93.62%, respectively, while few of them had no experience to use or receive birth control medication yet (Fig. 5).

Through the interviewing, around 54.55% of bitch owners said that they did not know about the consequence of using medication for birth control leading them to buy or bring the bitch to get medication for contraception (Fig. 6).

Seventy five percent of the bitches used birth control medicine 1 time, then 2 times (15.91%), and also up to 4 times already (Fig. 7).

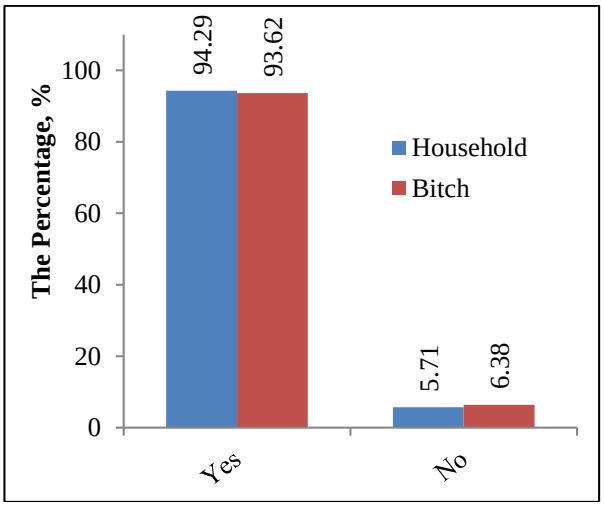

Fig. 5 Using birth control by medication.

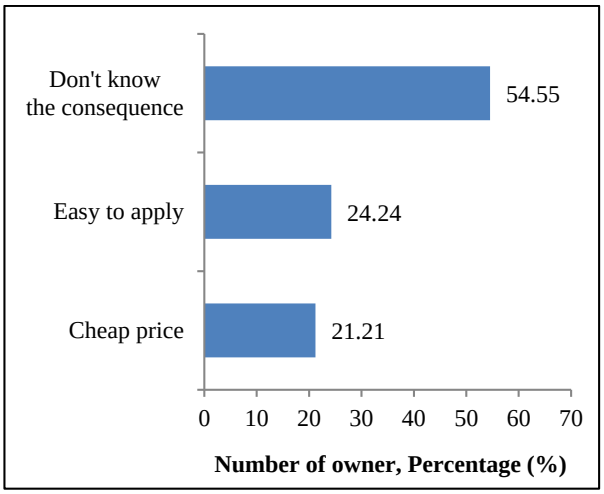

Fig. 6 Reasons for using nonsurgical method.

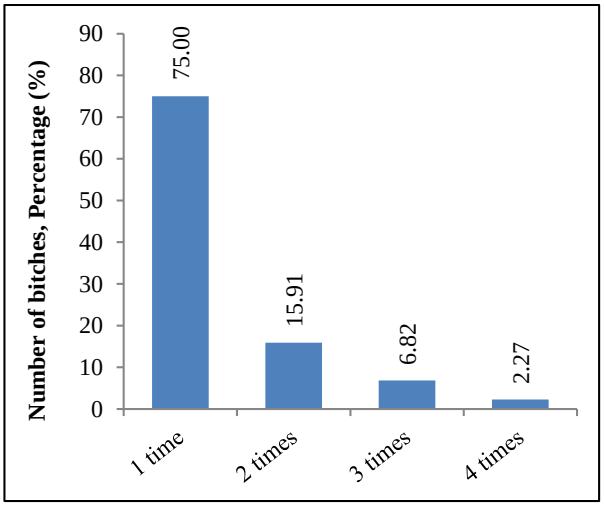

Fig. 7 Frequency of using medication.

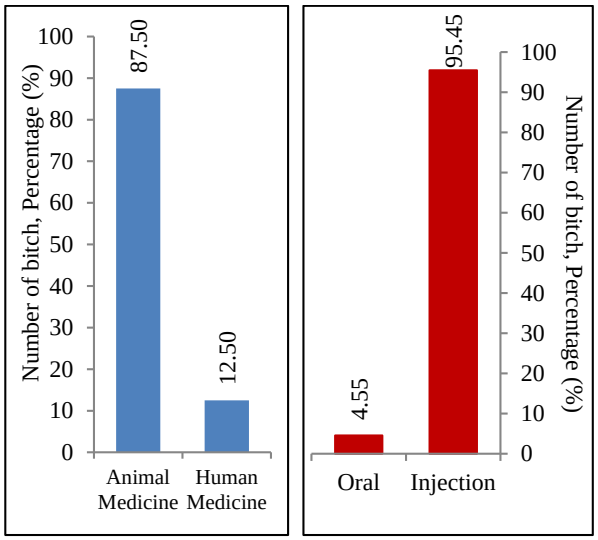

Fig. 8 Types of medicine and route of administration.

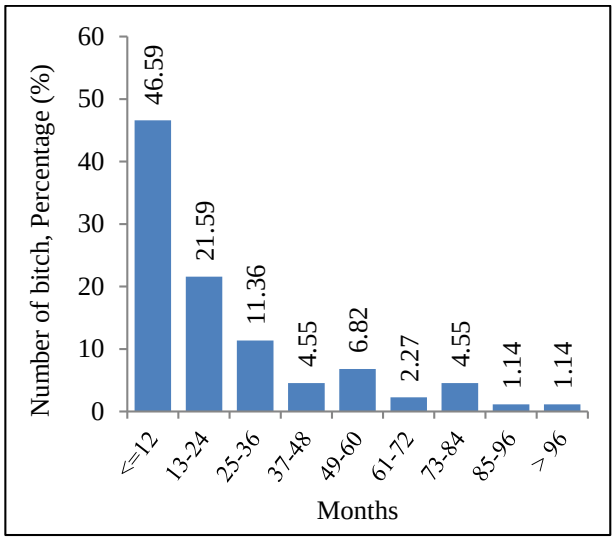

Fig. 9 Age of bitch at first exposure.

The animal medicine by injection was the most popular, 87.5% and 95.45%, respectively (Fig. 8).

Through the result Fig. 9 showed that most of the bitches received the first medication at ≤ 12 months of age, then followed by the age of 13-24 months with 21.59%.

Most of respondents said that the number of bitches administrating the medication before heat accounted for 61.36%, then during the heat and after heat were 22.73% and 14.77%, respectively (Fig. 10).

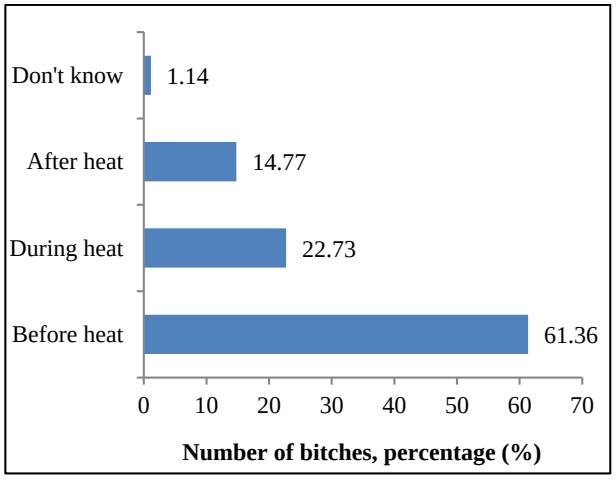

Fig. 10 Period of administrating.

3.5 Consequences Associated with Medication

Among bitches using birth control by medication, 47.73% of those got the health problem and 52.27% did not have any symptoms of illness (Fig. 11).

The problem was observed in less than 3 months after administration, accounting for 42.86%, and several years of post-administration was also observed, which was the long term effect of using nonsurgical control birth (Fig. 12).

Among clinical signs observed, the enlargement of belly was the most evidence, since 54.76% of affected bitches had shown it, then followed by discharge blood from vulvar, clear discharge and thick white pus from vulvar, accounting for 38.10%, 35.71% and 26.19%, respectively (Fig. 13).

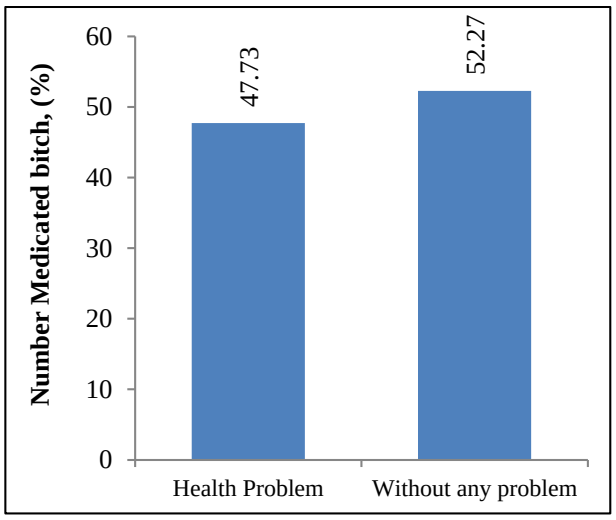

Fig. 11 Health status after use medication.

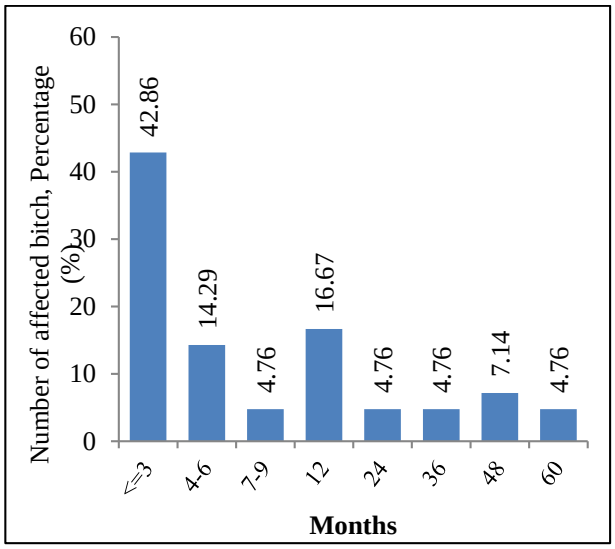

Fig. 12 Period for observing clinical signs.

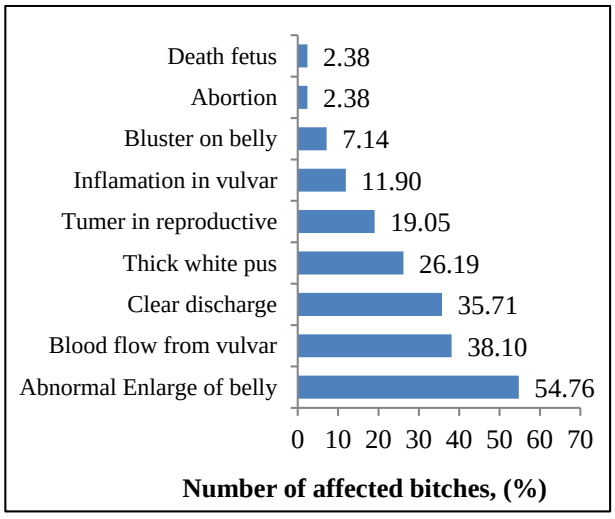

Fig. 13 Clinical signs associated with affected bitches.

4. Discussion

The overpopulation of dogs happened in worldwide, and a variety of effective methods for population control were needed. Nonsurgical methods of contraception are one such option. The several non-surgical methods were developed, including hormonal procedures, such as application of progestins, androgens and GnRH analogues in order to prevent the ovarian cycle [14, 15]. In addition, the use of non-surgical methods was useful and beneficial method to reduce pain of surgical removal of the ovaries or uterus, that is unnatural [16, 17]. There are still a significant number of undesirable health side effects when applied in older animals or even when misused. The use of most products can be independently of the age of the female and is devoid of side effects on the uterus or the mammary gland [18], since in our finding, almost half of the bitch owners who administered their bitch met several problems. But there was no any clear information about the name and the composition of drug. In the future, the study needs to evaluate the feasibility, effectiveness, sustainability, and effects of dog population size and also the impact of disease and public education programs [19] at the community level.

5. Conclusion

In conclusion, the dog owners were aware of the health management of their dogs, by regularly deworming and vaccinating the dogs. However, the side effect of the birth control by nonsurgical method in their bitches was still the main challenges, since almost half of them who used birth control faced health problem, especially the effect on the reproductive organ. However, some critical information was missed, especially the availability and the type of drugs used by the dog owners or clinicians, and this topic should deeply and further study to prevent and control the problem of side effect in the future.

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