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PREVALENCE AND RISK FACTORS FOR OBESITY IN DOGS AND CATS

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Abstract
The incidence rate of obesity in dogs varies from 24 to 44% depending on each country such as UK, Germany, Austria, USA and Australia, whereas, there were few studies on the incidence rate of canine and feline obesity in Asia. In our survey data in Korea 2009, the incidence rate of obesity in dogs (n=5239) and in cats (n=1061) were 21.3% and 10.2%, respectively. According to the risk factors of obese and obesity in our survey, Shih-tzu, Yorkshire Terrier, Maltese, Cocker Spaniel, Miniature Poodle, Pekingese, Schnauzer and Korean shorthair cat were more likely to be the predisposed breeds for obese or obesity. Thirty five % of dogs in the 7 to 8 year old, 27% of cats in the 7 to 9 year old were obese or obesity. Thirty eight % of female (15% intact and 23% neutered) and 21% of male (14% neutered and 7% intact) in dogs, whereas, 19% of male (4% intact + 15% neutered) and 9% of female (7% neutered + 2% intact) in cats are obese and obesity. Obese or obesity dogs were suffered from one of or several endocrine diseases (9% of diabetes, 16% of hypothyroidism and 13% of hyperadrenocorticism). A sound knowledge of prevalence and risk factors associated pathologies is vital for the effective prevention of obesity.

Prevalence
The incidence rate of obesity in dogs varies from 24 to 44% depending on each country such as UK, Germany, Austria, USA and Australia, all of these studies that have been performed in veterinary clinics in industrialized countries give a prevalence of obesity in dogs of at least 20% (1). In the cat, the incidence rate of obesity, which was very low in the 1970's, now exceeds 20%, regardless of the site of the epidemiological study (1). There were few studies on the incidence rate of canine and feline obesity in Asia. In our survey data in Korea 2009 (unpublished), performed in 37 veterinary clinics around Seoul, Korea that is one of industrialized countries in Asia, the incidence rate of obesity in dogs (n=5239) and in cats (n=1061) were 21.3% and 10.2%, respectively. The epidemiological data indicate the obesity will be one of major medical problems in canine and feline practice in the world as well as in the Asia in near future.
Risk factors

Energy intake and expenditure
Some risk factors of obese and obesity are associated with energy intake, others with energy expenditure, whilst several factors act on both intake and expenditure (1). The contribution of each of these two components varies significantly, however, the balance between energy intake and expenditure is more important in obese and obesity of dogs and cats.

Breed
The breed is one of risk factor for obese or obesity in dogs, however some authors differ on the relative incidence of predisposed breeds such as Cocker Spaniel, Labrador Retriever, Dalmatian, Dachshund, Rottweiler, Golden Retriever, Shetland Sheepdog, Mixed-breed (2). In our survey data in Korea 2009, Shih-tzu, Yorkshire Terrier, Maltese, Cocker Spaniel, Miniature Poodle, Pekingese, Schnauzer were more likely to be the predisposed breeds for obese or obesity. This data indicate that the incidence of predisposed breeds of the obese or obesity of dogs in Asia could be a little differ on those of some western countries such as UK, Germany, USA and Australia because of the preference and population of small breeds in Asia. Excess energy intake predisposes small breed dogs to excess weight gain whilst in large breeds. In the cat, there are few reported breed predisposition to obesity, but the majority of obese cats are cats of the so-called Domestic shorthair breeds (1). In our survey data in Korea 2009 (unpublished), Korean shorthair cat is more likely to be the predisposed breeds for obese or obesity. Some authors recently reported that the breed predispositions to obesity are partly linked to genetic factors and more specifically to the lean/fat mass ratio.

Age
The incidence rate of obesity increases with the age of both the dog (3) and owner (4). Thus, some 6% of bitches aged 9 to 12 months are obese, whereas some 40% of adult female dogs are obese (5). In the cat, the risk is greatest between the ages of 5 and 10 years; it then strongly decreases over the age of 10 years(1). In our survey data in Korea 2009, 35% of dogs in the 7 to 8 year old, 27% of cats in the 7 to 9 year old were obese or obesity.

Gender and neutering
Females represent a least 60% of obese and 40% of obesity in dogs (1, 5). Energy expenditure also seems to be reduced following neutering, however, the exact mechanisms are still not fully understood. Gonadectomy increases the incidence rate of obesity in the male and especially the female in dogs (4). Neutered bitches are twice as likely to become obese as intact females(4). The frequency of obesity is 32% in neutered dogs, compared to 15% in entire dogs, both male and female (6). Castrated cats are 3 to 4 times more likely to be obese than entire individuals, and males are more often affected than females, who have a higher resting metabolic rate (1). Our survey data in Korea 2009 represent 38% female (15% intact and 23% neutered) and 21% male (14% neutered and 7% intact) are obese and obesity in dogs, whereas, 19% male (4% intact + 15% neutered) and 9% female (7% neutered + 2% intact) are obese and obesity in cats.

Obesity and endocrine disorders
In the dog, obesity may be associated with certain endocrine disorders such as diabetes, hypothyroidism and
hyperadrenocorticism, at least 40% of dogs that suffer from one of these diseases are obese and obesity (1). Our survey data in Korea 2009 represent that obese or obesity dogs were suffered from one of or several endocrine diseases (9% of diabetes, 16% of hypothyroidism and 13% of hyperadrenocorticism).

**Other risk factors**

Sedentary lifestyle, lack of exercise, food type, miscalculation of energy requirements and the social dimension of food have been also considered the additional risk factors of obese and obesity in dogs and cats, however, we didn’t undertake statistical analysis of these factors in our survey 2009.

**Conclusions**

The diagnosis and nutritional management of obese and obesity in dogs and cats is very important as well as a major challenge for the future in the world. The effective prevention and nutritional management of obesity relies on a sound knowledge of the risk factors and a thorough understanding of the pathophysiology in dogs and cats.

**References**


