

Cancers Review

2016 Vol.3, No.2, pp.10-13

ISSN(e): 2408-9273

ISSN(p): 2409-2053

DOI: 10.18488/journal.95.2016.32.10.13

© 2016 Conscientia Beam. All Rights Reserved.



THE RISK OF OVARIAN CANCER IN WOMEN FED WITH MILK OBTAINED FROM GOATS HAVING DIFFERENT BIRTH TYPE AND KID SEX

Murat ÇİMEN^{1*}
Özlem ERTEKİN²
Duygu ULAŞ³
Tolga İNAL⁴

^{1,2,4}Department of Food Engineering, Faculty of Engineering, Munzur University, Turkey

³Provincial Directorate of Food, Agricultural and Livestock, Tunceli, Turkey



(+Corresponding author)

ABSTRACT

Article History

Received: 24 February 2017

Revised: 10 March 2017

Accepted: 29 March 2017

Published: 18 April 2017

Keywords

Ovarian cancer

Milk

Goat

Birth type

Kid sex

Women.

The aim of this research is to investigate the effect of kid sex and birth type of goat on milk content (fat, lactose and pH) and ovarian cancer risk in women. With an object of specifying the difference among milk parameters (lactose, fat and pH) with respect to birth type (20 single and 20 twin) and sex of birth (20 male and 20 female) in dams, 80 native (kil) Goats based on birth type and sex were divided in to four groups (single, twin, female, male). Milks obtained from dams giving birth to twins and single kid showed significant differences in terms of lactose rates. Lactose level (5.12%) of the dams giving birth to one offspring was found higher than that of goats (4.70%) have twin kids. Also, birth type in dams had a significant influence on milk fat rates. The fat rate of milk (3.74%) obtained from single group was found higher than milk fat rate (3.45%) of twin group. There was no difference between single and twin group for milk acidity (pH). There are no differences between different sexes (male and female) of birth with respect to all milk parameters. According to findings obtained from this study, preferring the milks of the dams giving birth to twins can be relatively advantageous for the ovarian cancer risk. It is known that the contents of milk are proving to be a major risk factor in the development of ovarian cancer. However, exposure to risk factors such as high milk fat and lactose levels in milk from goats giving birth to single kid doesn't means that ovarian cancer will necessarily occur.

Contribution/ Originality:

This is the first study on relationship between milk obtained from goats and ovarian cancer risk in women. The paper's primary contribution is finding that which milk increases ovarian cancer risk. This study contributes in the existing literature by demonstrating the importance of milk obtained from goats on ovarian cancer risk.

1. INTRODUCTION

It has been hypothesized that milk consumption increases the risk of ovarian cancer because of a possible association of lactose with human ovarian failure. Milk is also a source of animal fats in the diet, and animal fat

* Corresponding author

intake is associated with ovarian cancer risk. Consumption of reduced-fat milk was associated with reduced relative risk. Among persons who reported drinking milk regularly, persons reporting drinking only whole milk were at increased risk (relative risk = 2.6, 95% CI 1.7-4.0) relative to persons who drank only skim milk or 2% milk. These findings suggest that milk-drinking is not a source of ovarian cancer risk independently of its fat content. Additional study of lactose and ovarian cancer risk involving careful control for confounding is needed [1]. A significant increase in ovarian cancer risk only existed with frequent intake of yogurt and cottage cheese. Researchers hypothesized that the prehydrolyzed lactose in both foods was the main contributor. Low fat milk was associated with decreased risk, even though both milks have the same lactose content [2].

The animal and environmental factors such as breed, live weight, race, stress which affect milk yield in dairy animals have effect on milk constituents [3, 4]. The studies have been done the effect of birth type of offspring in goats on milk lactose and fat levels [5]. However there have been no studies to find out the effect of birth type of goats on milk lactose and total fat rates and its risk to ovarian cancer. Since nutrition are most common risk factors for ovarian cancer, the risk factors can be eliminated or substantially reduced in number if we can identify the risk factors and modify them accordingly. The parameters such as fat and lactose in milk are proving to be a major risk factor in the development of ovarian cancer, a risk factor that can definitely be modified. The nutrition appears to be most important factor in 60 percent of women's cancer [6]. The reader and milk consumer will gain new knowledge from the new point of view with this study. This is the first study on interpretations associated with animal factors on milk parameters and ovarian cancer risk. Further research between animal factor associated milk parameters (such as fat and lactose) and ovarian cancer risk is needed.

2. MATERIALS AND METHODS

With an object of specifying the difference among milk parameters (lactose, fat and pH) with respect to birth type (20 single and 20 twin) and sex of birth (20 male and 20 female) in dams, 80 native (kil) Goats based on birth type and sex were divided in to four groups (single, twin, female, male). All goats fed rations containing 90% roughage and 10% concentrate. Milk samples were taken from each goat first day of 2nd, 3rd, 4th week of early lactation. Lactose and fat data as the mean of the weeks were obtained. Sufficient milk (50 ml) was taken for the laboratory analysis. The samples were carried to the lab in a short period. Funke Gerber Lactostar, (3510) analysis device was used for total fat and lactose analysis. The milk pH was determined using a Xerolty electrode (Model HA 405; Ingold Electrode, Wilmington, MA). For the statistical analyses of data, independent two sampled t test statistical analyses method was used [7, 8]. The data were presented as mean \pm standard error. Comparisons were done with help of the SPSS 18 statistical program.

3. RESULTS AND DISCUSSION

In study, milks obtained from dams giving birth to twins and single kid showed significant differences in terms of lactose rates (Table 1). Lactose levels (5.12%) of the dams giving birth to one offspring were found higher than that of goats (4.70%) have twin kids ($p=0.017$).

Table-1. Milk Parameters for Different Birth Type

Parameters	Birth Type				P
	Twin (n=20)		Single (n=20)		
	Mean	SEM	Mean	SEM	
Lactose, %	4.70	0.10	5.12	0.06	0.017
Fat, %	3.45	0.12	3.74	0.14	0.044
pH	6.71	0.09	6.73	0.17	0.069

SEM=Standard Error Mean, p= Significance level

According to milk fat results, it was specified that birth type in dams had a significant influence on milk fat rates. As shown the table, the milk fat level (3.74%) in single group was found higher than milk fat rate (3.45%) of twin group.

Confirming the findings from this study with similar studies on different goat breed will be useful. In case of parallel findings to be obtained from next studies it should be explained that why birth type has an effect on lactose rates. According to findings obtained from this study, preferring the milks of the dams giving birth to twins can be relatively advantageous for the ovarian cancer risk. Çakır and Çimen [5] reported that twin kids and their moms are more stressed because of lower milk intake when compared with singles. The stress in kids might be due to low milk intake in twins. High milk production may negative effect on lactose and fat synthesis in udder of goats giving birth to twins. Topçu [9] expressed that higher milk yield in dams giving birth to twin has negative effect on milk lactose and fat synthesis. This explanation may explain the reason of low milk fat and lactose rates in dams have twin kids.

There was no difference between groups for milk acidity (Table 1). In health circles there has been much recent talk about acid/alkaline imbalance. Acids can build up in our body, causing systems to be out of balance and cancer. Low pH causes body store more toxins in cells and reduces oxygen levels both of which are basic to occur of cancer. Acidic foods will raise blood pH levels and create an environment in the body that discourages cancer growth [10]. According to acidity result of study we cannot say anything about the risk of cancer for the milks of two groups. The milk pH levels of groups are similar with announced values (lactose least 4.4%, total fat least 2.6%, pH 6.6) by Hossain and Dev [11] for human nutrition and health.

Table-2. Milk Parameters for Different Kid Sex

Parameters	Kid Sex				P
	Male (n=20)		Female (n=20)		
	Mean	SEM	Mean	SEM	
Lactose, %	4.88	0.09	5.01	0.15	0.068
Fat, %	3.57	0.23	3.68	0.19	0.096
pH	6.74	0.16	6.72	0.22	0.082

SEM=Standard Error Mean, p= Significance level

As shown the Table 2, there are no differences between different sexes of birth with respect to all milk parameters. The findings in this study for sex of offspring were similar to those of previous investigations in Egypt [12].

According to the evidence obtained from this survey, we can say that all animal factors such as breed, age, morphological characteristics, live weight, and body condition affecting milk fat and lactose rates should be investigated to know the risk of ovarian cancer. The death rate for ovarian cancer has been rising for female population since 1940 and the rate of rise for females is much greater now than ever before [6]. We must modify or arrange all risk factors (environmental and animal) in foods so that we will eventually be able to prevent ovarian cancer more effectively. Exposure to risk factors doesn't means that ovarian cancer will necessarily occur. It simply means that a woman exposed to risk factors has a greater than normal chance of developing ovarian cancer [13]. To sum up further research between animal factors associated milk parameters (such as fat and lactose) and ovarian cancer risk is needed.

4. CONCLUSION

Milk samples of twin group showed minimum values in terms of lactose and fat rates. The milks obtained from dams giving birth to twins can be relatively advantageous for the ovarian cancer risk. Animal factor associated milk fat and lactose rates should be investigated to know the risk of ovarian cancer.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

REFERENCES

- [1] C. J. Mettlin and M. S. Piver, "A case-control study of milk-drinking and ovarian cancer risk," *American Journal of Epidemiology*, vol. 132, pp. 871-876, 1990. [View at Google Scholar](#) | [View at Publisher](#)
- [2] C. J. Mettlin, "Invited commentary: Progress in the nutritional epidemiology of ovary cancer," *American Journal of Epidemiology*, vol. 134, pp. 457-459, 1991. [View at Google Scholar](#) | [View at Publisher](#)
- [3] M. Cimen, M. Karaalp, and M. Elmastas, "Effect of breed and live weight on milk fat depression in sheep," *Asian Journal of Chemistry*, vol. 20, pp. 3885-3888, 2008. [View at Google Scholar](#)
- [4] P. Penchev, Y. Ilieva, T. Ivanova, and R. Kalev, "Fatty acid composition of buffalo and bovine milk as affected by roughage source – silage versus hay," *Emirates Journal of Food and Agriculture*, vol. 28, pp. 264-270, 2016. [View at Google Scholar](#) | [View at Publisher](#)
- [5] Y. Çakır and M. Çimen, "The effect of birth type and sex of kids on milk lactose levels," *International Journal of Bioscience*, vol. 9, pp. 365-368, 2016.
- [6] B. Charles and M. D. Simon, *Cancer and nutrition. B*. NY, USA: Jain Publishers Ltd, Bookcode: B-3927, 2003.
- [7] M. J. Norusis, *SPSS for windows. Base system user's guide*. Chicago, USA: SPSS, 1993.
- [8] M. Çimen, "Fen ve Sağlık Bilimleri Alanlarında Spss uygulamalı Veri Analizi". Palme Publication, Book No: 905. pp314. ISBN: 978-605-355-366-3. Ankara," 2015. (In Turkish)
- [9] H. Topçu, "Erken laktasyon döneminde Saanen keçilerde ana canlı ağırlığının ekonomik öneme sahip süt biyokimyasal parametreleri üzerine etkisi," Msc Thesis. Graduate School of Natural and Applied Science. Tunceli University. Tunceli. (In Turkish), 2012.
- [10] D. Chadwick, "Can a low-acid diet help prevent cancer?," *Intellisphere*, vol. 1, pp. 609-716, 2015.
- [11] M. B. Hossain and S. R. Dev, "Physiochemical characteristics of various raw milk samples in as selected dairy plant of Bangladesh," *International Journal of Engineering and Applied Science*, vol. 1, pp. 91-96, 2013. [View at Google Scholar](#)
- [12] M. N. F. Hamad and M. M. El-Moghazy, "Influence of sex and calf weight on milk yield and some chemical composition in the Egyptian buffalo's," *Journal of Animal and Veterinary Sciences*, vol. 2, pp. 22-27, 2015. [View at Google Scholar](#)
- [13] R. R. Palan, S. L. Romney, M. Mikhail, J. Basu, and S. H. Vermund, "Decreased plasma beta carotene levels in women with uterine cervical dysplasia and cancer," *Journal of the National Cancer Institute*, vol. 80, pp. 454-455, 1988. [View at Google Scholar](#) | [View at Publisher](#)

Views and opinions expressed in this article are the views and opinions of the author(s), Cancers Review shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.