

Conference Paper

The Relationship between Eating Wild Animal Meat with the Level of Uric Acid in Langowan Minahasa, Indonesia

Mandias Reagen

Faculty of Nursing UniversitasKlabat, Manado, Indonesia

Abstract

Background; Some researchers have proven that there was a relationship between eating meat and uric acid levels. There have been no specific studies on the relationship between eating wild animal products and uric acid levels. LangowanMinahasa is one of the tribes in Indonesia whose people love to eat wild animal meat from hunting. **Objectives;** The purpose of this study was to determine the relationship between consumption of wild animal meat and uric acid levels in the LangowanMinahasa community. **Methods;** The research method used was cross sectional with 35 respondents selected using purposive sampling. **Results;** 42.9% of respondents eat wild animal meat more than three times a week and the mean of uric acid was 6.78mg/dL (SD = 1.27). There was a positive relationship between consumption of wild animal meat with uric acid levels in the MinahasaLangowan community ($r = 0.562$), ($p = 0.000$). **Conclusions;** consumption of wild animal meat with uric acid levels have a positive relationship. This study recommend that the LangowanMinahasa people should reduce or even stop consuming wild animal meat and switch to consuming other protein sources. The researcher also recommended to village officials and the government to provide information to the community on the negative impact of consuming meat from hunted products, both on health and natural ecosystems.

Corresponding Author:

Mandias Reagen

rmandias@unklab.ac.id

Received: 22 September 2019

Accepted: 4 October 2019

Published: 10 October 2019

Publishing services provided by
Knowledge E

© Mandias Reagen et al. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ICHT 2019 Conference Committee.

Keywords: Uric Acid, Wild Animal, Bushmeat

1. Introduction

Minahasa is one of the tribes in Indonesia whose people love to eat wild meat. In 2000, from data obtained in 17 villages in Minahasa, 36% of the meat consumed came from the forest, such as partridges, wild boar, bats, snakes, dogs, cats, and even forest rats. This tradition is getting stronger because serving and eating wild animal meat is considered prestigious. The rarer the meat served, the more prestigious it will be [1, 2]. The community believed that wild meat is more healthful than the ordinary meat, because the wild animals are very actively moving and eat natural food.

According to [3], the Langowan market in Minahasa is one of the slaughterhouses for the sale of wild animals such as partridges, wild boar, bats, snakes, dogs, cats, to forest

OPEN ACCESS

rats, apes, python snakes, and monitor lizards. This information gives an indication that people in Langowan like to consume wild meat animal so that the meat of these wild animals is traded at the Langowan market.

Previous studies reported the relationship between meat eating with elevated levels of uric acid or hyperuricemia and gout. Research conducted by [4], found that diet plays a significant role in the development of hyperuricemia and gout. Other studies found out that wrong lifestyles such as high protein diets [5], lack of vitamin C and calcium intake [6] red meat and alcohol [7] were associated with gout, however there is no specific study regarding the relationship between meat eating wild game with hyperuricemia. The purpose of this study to determine the relationship between eating wild meat animal with uric acid levels in the LangowanMinahasa community.

2. Methods

This type of research used in this study is cross sectional in LagowanMinahasa Community in July and August 2018. The population in this study was the LagowanMinahasa community. Inclusion criteria in this study were men and women who were domiciled in LangowanMinahasa, consumed hunted meat at least once a week, and were willing to be respondents in this study and signed an agreement. About 35 respondents were selected using purposive sampling.

In this study, researcher used the Easy Touch GCU instrument to measure uric acid levels in the blood, as well as observation sheets to document respondents' demographic data and the results of gout examinations. Uric acid levels in the blood are taken randomly from the peripheral veins in the fingers (not fasting). While the frequency of eating game meat is a habit of the public to consume wild meat in the last month.

All respondents came to the village hall, then the researcher explained the purpose of the study and asked the respondents to sign an inform concern if they were willing to become respondents. The respondents are free to decide to join the study or not.

3. Results

Table 1 shows the frequency distribution of 35 respondents who consumed wild animal meat once a week, twice a week and greater than three times a week. The results showed that 15 respondents (42.9%) consumed wild animal meat three or more times a week. While 13 respondents (37.1%) consume wild animal meat once a week and only seven respondents (20%) consume game meat twice a week

TABLE 1: Frequency of Wild Meat Consumption (n=35).

	n	%
once a week	13	37.1
twice a week	7	20.0
more than three times a week	15	42.9
N	35	100

Based on table 1 it can be concluded that the majority of respondents consume hunted meat at least three times a week. These results indicate that respondents have a high desire to consume wild animal meat

3.1. Uric Acid Levels in Langowan Minahasa Community

TABLE 2: Average Level of Uric Acid.

Frequency	Mean	N	Std. Deviation
once a week	6,07 mg/dL	13	1,08
twice a week	6,26 mg/dL	7	,38
more than three times a week	7,65 mg/dL	15	1,21
Average	6,78 mg/dL	35	1,27

Table 2 shows that the average level of uric acid in the Langowan community is 6.78 mg / dL. Meanwhile, if it is seen from the frequent consumption of game meat, it can be seen that respondents who consume game meat is greater than three times a week showing the highest average uric acid level, which is, 7.65 mg / dL. While the lowest uric acid levels were respondents who consumed prey meat once a week which was 6.07 mg / dL

From table 2 it can be concluded that the more often the respondent consumes meat from the hunted, the higher the average uric acid level of the respondent.

3.2. Consumption of game meat with hyperuricemia

Table 3 shows the results of the analysis of the relationship between prey meat consumption and hyperuricemia in the LangowanMinahasa community which shows that the Sig value is $0,000 \leq 0,005$. Thus the hypothesis (H0) that there is no relationship between consumption of game meat with hyperuricemia in the LangowanMinahasa community is rejected. Or in other words, there is a significant relationship between consumption of danging game and an increase in gout in the LangowanMinahasa community.

TABLE 3: Correlations Meat Consumption with Level of Uric Acid.

		Frequency Consumption	Level of Uric Acid
Frequency Consumption	Correlation Coefficient	1,000	.562**
	Sig. (2-tailed)		,000
	N	35	35
Level of Uric Acid	Correlation Coefficient	.562**	1,000
	Sig. (2-tailed)	,000	
	N	35	35

Correlation Coefficient data from table 3 shows a positive value of 0.562, which means that the consumption of game meat with uric acid levels in the Langowan-Minahasa community has a strong relationship with a positive direction, where when respondents consume more game, meat levels will also increase.

4. Discussion

42.9% of respondents eat wild animal meat more than three times a week. Putri (2018) reports that about 97% of traders and 85% of buyers of wild animal meat from bat are from Minahasa and Sangir. It was further reported that the hearts and hearts of bats are believed by local people to cure asthma, and they consider bats as a good source of protein because bats live in the forest and only eat fruits. Besides that, [1] reported that the traditions and culture of the Minahasa community to consecrate meat from their ancestors played an important role in the habit of consuming game for the Minahasa community.

The more often people consumes meat from the hunted, the higher the uric acid level. Meat from wild animal contains high protein so that it can trigger an increase in uric acid levels in the blood. This is in line with the study of [5] who concluded that wrong lifestyles such as high protein diets are often associated with hyperuricemia or high uric acid levels and gout. Furthermore Roubenoff (n.d) states that some types of meat such as beef, chicken and pork contain high in protein can cause increased levels of uric acid in the blood.

Consumption of wild animal meat with uric acid levels have a positive relationship. The results of this study are supported by previous research which states that meat consumption has a relationship with an increase in uric acid in the blood, because in danging it contains high protein. [8] states that protein in animal meat is the highest protein compared to other protein sources, such as milk and eggs. [9] states that the

protein in animals is located in muscle tissue which is 15% to 20% of the mass of meat, so it can be concluded that the meat of game animals has greater muscle because these animals live in the wild. [5, 7] in their study concluded that wrong lifestyles such as high protein diets such as red meat can increase the risk of hyperuricemia

5. Conclusions and Recommendations

There was a positive relationship between wild animal meat consumption with increased levels of uric acid in the Langowan Minahasa community, where the more people consume wild animal meat, the higher levels of uric acid in the blood.

Based on the results of this study, the researcher recommends the LangowanMinahasa community to reduce or even stop the consumption of game meat and switch to consuming other sources of protein. The researcher also recommends that village officials and the government provide counseling to the community of the negative impacts of consuming hunted meat both impacts on health and on natural ecosystems. For future researchers to examine other factors that influence the acid levels of the LangowanMinahasa community.

References

- [1] Suwarna, B., & Dundu, P. (2013, Desember 19). *Makanan minahasa dan tradisi menyantap hewan liar*. Diambil kembali dari Kompas: <http://travel.kompas.com/read/2013/12/19/0841079/Makanan.Minahasa.Ketika.Tikus.Mengalahkan.Sapi>
- [2] Mardianto, B. (2017, February 10). *Pasar di Manado menjual daging segala macam hewan*. Diambil kembali dari Iyaa.co: <https://media.iyaa.com/article/2017/02/pasar-di-manado-menjual-daging-segala-macam-hewan-3584948.html>
- [3] Hidayat, M. A., & Hari, A. (2016, Agustus 1). *Cek harga daging piton hingga tikus di pasar ekstrem ini*. Diambil kembali dari VIVA.co.id: <http://m.viva.co.id/gaya-hidup/kuliner/803386-cek-harga-daging-piton-hingga-tikus-di-pasar-ekstrem-ini>
- [4] Karina, T., Eerson, D. J., & Shylaja, R. (2012). The nterplay between diet, urate transporters and the risk for gout and *hyperuricemia*: current and future directions. *International Journal of Rhematic Diseases*, 499-506.
- [5] Li, L., Shanshan, L., Ke, X., Zhaowei, M., Qing, Z., & Kun, S. (2013). Relationship between lifestyle choices and *hyperuricemia* in Chinese men and women in Chinese men and women. *Clinical Rheumatology*, 233-239.

- [6] Mulyasari, A., & Dieny, F. F. (2015). Faktor Asupan zat gizi yang berhubungan kadar asam urat darah wanita post menopaus. *Journal of Nutrition College*, 232-242.
- [7] Ashton, A. (2013). *Issues in Rheumatology Research and Practice 2013 Edition*. Atlanta: Scholarly Editions.
- [8] King, J. (2017, Oktober 3). *What Nutrition Does Meat Have?* Dipetik February 15, 2018, dari Livestronge.com: <https://www.livestrong.com/article/518960-what-nutrition-does-meat-have/>
- [9] Freedieting. (2018, Februari 25). *Calories in Meat*. Diambil kembali dari Freedieting: <https://www.freedieting.com/calories-in-meat>