

The Prevalence of Increasing Uric Acid and Blood Pressure in Elderly People at Panti Jompo Werdha Tresna in Gianyar Bali (Preliminary Studies)

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ABSTRACT

The prevalence of increasing of uric acid and blood pressure is high in elderly people. Most of old people who suffer from high uric acid also do suffer from high blood pressure. This will eventually lead to many diseases which may lead to chronic condition or even death. The purpose of this study was to know the prevalence of increasing uric acid and blood pressure in elderly people at Panti Jompo Werdha Tresna in Gianyar Bali. The method of research is cross sectional descriptive observational. The research sample is 20 people which consist of 5 male and 15 female from the Panti Jompo Werdha Tresna in Gianyar Bali who is aged from 60-80 years old. The individual was chosen randomly with their permission. Based on the

research we found that the level of uric acid which was high is for 9 person (45%) and 11 person (55%) of them have normal range of uric acid level. The person who suffering from normotension is 9 person (45%), prehypertension is 6 person (30%) and lastly hypertension is only 5 person (25%). The number of population who suffer from hypertension and they also have elevated value of uric acid is 4 person (44.4%). It can be concluded that age was not a risk factor for the increasing level of uric acid and blood pressure because the sample that was very small. Old people should be given proper guidance to a healthy lifestyle.

Keywords: uric acid, blood pressure, old people

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INTRODUCTION

The body will break down some compounds that is known as purines which formed by chemically. The substances consists of nitrogen, carbon, oxygen, and hydrogen. Urates and acid urates such as ammonium acid is formed by ions and salts.^{1,3} The metabolic breakdown of purine nucleotides is uric acid. The amount of uric acid in a blood sample is measured by blood uric acid test. It can be produce when we consume food with uric acid.²

Kidneys filter most of the uric acid out and it is excreted through urine. A little quantity will be excreted as stool, in addition if the amount uric acid is being created excessively or let say the kidneys cant remove uric acid from the blood vessel normally, it tend to increases the percentage of uric acid in bloodstream.^{6,9}

When cells die, substance such as purine is released, this can be found in some foods. The breakdown of purines and are eliminated as uric acid. Hyperuricemia is a condition where there is more uric acid than

the kidney can get rid of or high amount of uric acid in the blood stream develops.^{4,10} Crystals that are in the joints and other tissues can be developed. When the crystals are accumulated, they can cause a painful attack of gout.^{3,5}

Not every individuals with hyperuricemia will get gout but once gout is developed, it will most probably to return, unless treated by medicine that lowers uric acid amount. The occurrence of hyperuricemia in developing countries has rarely taken into account. The ultimate reason of the thesis is to investigate the occurrence of high uric acid and high blood pressure.^{2,3,5}

Below are the levels risk factors such as cardiovascular and high blood pressure in a developing country with uric acid ranges for men 2.5 to 8 mg/dL and for women 1.9 to 7.5 mg/dL.³

Serum urate concentrations in most children range from 3-4 mg/dL. The levels begin to rise during male puberty but female levels remain low until menopause. Mean values is 6.8 mg/dl for adult men, and mean values is 6 mg/dL is for premenopausal women.^{2,7} The mean values for women increase. Throughout adulthood, concentrations increase steadily and can differ with blood pressure, height, body weight, alcohol intake, and renal function.^{1,5} The effects of uric acid are very severe which can prone to diseases such as gout, metabolic acidosis and kidney stones^{10,11}

Uric acid may be a reason of hypertension or renal disease. Uric acid played a pathogenic role in hypertension mediated by several mechanisms such as, stimulation of the renin angiotensin aldosterone system endothelial dysfunction and, the proliferation of vascular smooth muscle cell in renal microcirculation, inflammation.^{4,11}

Moreover, studies have shown that in overweight and obese people, secondary hyperinsulinemia to insulin resistance may enhance the reabsorption of uric acid and thus contribute to the association of hyperuricemia with hypertension.^{5,7,8} The increasing prevalence of hypertension in Cameroon coupled with the forecast that by the year 2020, diseases such as cardiovascular diseases will be the main reason of morbidity and mortality in fast moving countries, which can

be counted almost four times deaths from diseases which can communicable warrant that weight be assigned to the individual risk factors of hypertension and the existence of any possible interaction between them as this will improve the efficiency of prevention strategies. However given that the results linking uric acid and hypertension are not entirely consistent this thesis was carried out to check the relationship between uric acid and hypertension in Cameroonian elderly people.^{1,8,9}

METODE

The objective is to know the prevalence of increase of uric acid and blood pressure in elderly people at Panti Tresna Werdha in Gianyar Bali and the special purpose is to describe the effect of uric acid level in elderly male and female.

The benefit is able to know the prevalence of increase of uric acid and blood pressure in elderly people and to find a solution for the prevalence of increase of uric acid and blood pressure in elderly patient and give information about the effect amount of uric acid in the bloodstream.

RESULTS

The studies population characteristic is described in table 1. It was conducted in Panti Tresna Wedha in Gianyar Bali, and 20 samples was taken into account who aged 60-80. It consist of 5 male (25%) and 15 females (75%). The level of uric acid which was high is for 9 person (45%) and 11 of them have normal range of uric acid level which is (55%). The percentage of male who suffered from high uric acid level is (20%) percentage of female who suffers from high level of uric acid is 53.33% as can be seen .Blood pressure is divided into three which is normtension, prehypertension and hypertension. The person who suffering from normotension is 9 people (45%), prehypertension is 6 people (30%) and lastly hypertension is only five people that is (25%). The mean age of elderly people is 69.6 ±6.8 age range from 60-80. The mean systolic blood pressure is 125.5±12.84 mmHg range from (110-160) and the mean of diastolic blood pressure is 79±7.68mmHg range from (70-100). The average mean of uric acid 6.59±6.34. The number of population who suffer from hypertension and they also have elevated value of uric acid is only 4 people

which is (44.4%). The other who high uric acid level but normal blood pressure is 5 people (55.6%).

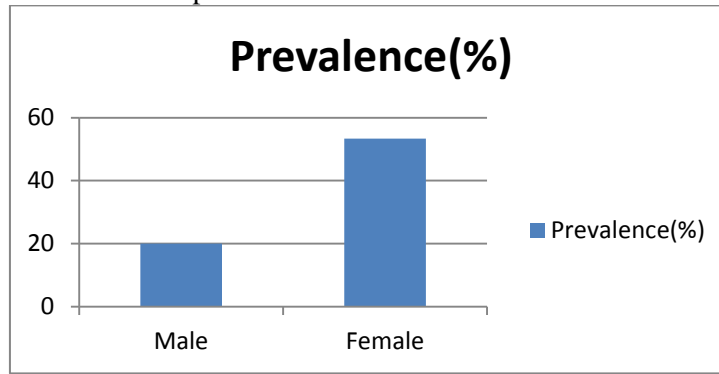


Figure 1. Prevalence of male and female who suffering from high level of uric acid

Tabel 1. Criteria of old people who suffers from uric acid and blood pressure

Sample	Age(years)	Uric acid(mg/dL)	Blood pressure(mm/Hg)
1	68	7.0	120/80
2	68	4.8	110/80
3	70	7.4	110/70
4	75	6.4	110/70
5	70	6.9	120/80
6	62	8.0	120/70
7	75	3.4	130/90
8	80	7.0	120/80
9	60	9.1	120/80
10	71	5.3	130/100
11	60	4.2	140/80
12	75	5.3	160/80
13	79	7.2	150/80
14	70	10.6	110/70
15	57	5.6	130/90
16	70	8.6	130/70
17	60	4.7	120/70
18	67	5.9	130/80
19	80	5.0	130/80
20	75	9.4	120/80

DISCUSSION

The result shows the old people who suffer from blood pressure doesn't have to suffer high level of uric acid. A study also have been conducted by Nutrition and food sciences by the title The Relationship between Uric Acid and Hypertension in Adults in Fako Division,

SW Region Cameroone. The sample reading that was used by them was big which is 297 people meanwhile Only 20 people was used in this studies which is 5 male and 15 female.¹ The average mean of uric acid on this study is higher than the study conducted by them. But the mean of blood pressure is lower than in this research. Based on this study there is no

relation between uric acid, blood pressure and age but there is relation of high uric acid and high blood pressure among the elderly people in studies conducted by the Nutrition and food sciences, it shows those elderly people who suffering from high uric acid have high blood pressure. Based on this studies the evidence that blood pressure, and uric acid doesn't significant because first of all the sample was small and some of the elderly people doesn't follow the instruction so it doesn't turn up to be true result. The characteristic of the elderly people is well defined in table 1 and the Figure 1 also shows those who suffer from uric acid more is female than the male. These are the people who might have high chance of high blood pressure. The studies conducted by nutrition and science proves that those patient who suffer from high uric acid is the main one to suffer high blood pressure.¹

CONCLUSION

Increase of uric acid and blood pressure because of some other factors and it's not mainly because of age. It is known after we done with the studies as we can see the studies doesn't show a significant value, because there is not enough of sample and this make the studies not significant. So maybe we should have done it in bigger sample to get more accurate results even though 40 samples were taken but only 20 was taken into consideration because of the exclusion criteria.

This studies indicates that age is not a factor to increase the uric acid level and blood pressure and other risk factor should also take into consideration so it's better to the younger generation to take precaution earlier as we can see it was proven age was not a factor for level of uric acid increase and also high blood pressure.

The studies was limited and it was conducted at one specific location that is, so the research done at Panti Tresna Werdha in Gianyar Bali cannot be generalized to all old people of Bali. In hoping that this studies should be done in a bigger scale so that an accurate can be achieved in the future. This study was performed based on observational descriptive cross sectional so there might have errors regarding other risk factors. Indonesia is one of the main country that facing the problem of arthritis and high blood pressure.

So to overcome this problem, hospitals and health ministry should create different approach for the elderly to understand the importance of controlling uric acid level and high blood pressure, furthermore also give some privileges to the elderly people at there. In this fast moving world we should take our responsibility to guide the elderly people about the disease. In this modern era with high tech facilities we can diagnose level of uric acid early and may prevent from getting gout and arthritis. Risk factors like blood pressure if checked early it can be prevented. We hope with high tech facilities and also with proper guidance from doctors, and ministry of health, the elderly may lead a better and health life.

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