

# Prevalence of Anemia & Hypertension their Impact in Elderly People

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**Abstract:** The aim of our study was to estimate the prevalence of anemia and hypertension among elder persons. We have analyzed medical record reviews of 500 elderly persons (293 men and 207 women) presented in primary care physicians from January 2012-December 2014 in Shkoder district. Records data collected from a standardized questionnaire were calculated by SPSS version 19. In our study the prevalence of two diseases anemia and hypertension in elderly person resulted 18.6% and 46.2% respectively. The average age was 71.89, with minimum age 65 and maximum 95 years old, Std deviation 11.5. The prevalence of anemia was higher to women compared to men 10.2% and 8.4% respectively but in other hand prevalence of hypertension was higher to men compared to women 25% and 21.2% respectively. The presence of anemia was independently associated with an increased risk of hypertension 95% CI p value >0.05. Conclusion: The prevalence of anemia and high blood pressure among elderly of Shkodër district is high with a major problem with impacts on social and economic development of our life. We think this is result living in difficult financial conditions and constant stress due to the difficulty at life. More life style factors are significantly associated with anemia and hypertension. So there is an urgent need for calls attention to the elderly.

**Keywords:** Anemia, hypertension, elderly, Shkodër

## 1. Introduction

Anemia and Hypertension represents a global health problem that negatively impacts quality of life in elderly population (defined as people aged > 65 years). Those two diseases increasing as the population ages and has a significant effect on the quality of life. Anemia is a condition in which the number of red blood cells (and consequently their oxygen-carrying capacity) is insufficient to meet the body's physiologic needs. Specific physiologic needs vary with a person's age, gender, residence, smoking behavior, and different stages of pregnancy. Causes of anemia in the elderly are divided into three broad groups: nutritional deficiency, anemia of chronic disease and unexplained anemia [1]. Nutritional deficiencies represent a treatable subgroup and include lack of iron, vitamin B12 or folate [2, 3]. Anemia has been associated with a higher incidence of cardiovascular disease and decreased physical performance and quality of life [4-7]. This disease increase risk of mortality, in particular, mortality related to cardiovascular [4]. Worldwide, raised blood pressure is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths. Hypertension is one of the four classical risk factors for coronary heart disease and ischemic as well as haemorrhagic stroke [8, 9]. The prevalence of hypertension is increasing rapidly in developing countries more in urban areas due to changing life style and increasing longevity of hypertension [10, 11]. More studies have shown that hypertension was more associated with family history, age, obesity, diabetes, dietary habits, smoking, and physical inactivity [12-16].

## 2. Materials and Methods

The study population consisted of a sample of 500 elderly more than 65 years old who were presented on primary care physicians during the period January 2012-December 2014.

Data were collected after taking informed consent, of each elderly person. They were interviewed by using a standardized questionnaire, which contains socio-demographic characteristics (age, education, occupation, marital status, etc), and risk factors associated with anemia and hypertension among urban population of Shkoder district. Data were analyzed using SPSS version 19. The mean, frequencies, and rates of the given data for each variable were calculated. Proportions and chi square test were used too. A value of less than 0.05 was considered statistically significant, and adjusted odds ratio with 95% CI was calculated to determine association.

## 3. Results

Out of 500 elderly patients (293 men and 207 women) presented to primary care physicians during three years (2012-2014) with problem of anemia and hypertension. The prevalence of anemia and hypertension resulted to be 18.6% (93 cases) and 46.2% (231 cases) respectively (in both sex men and women).

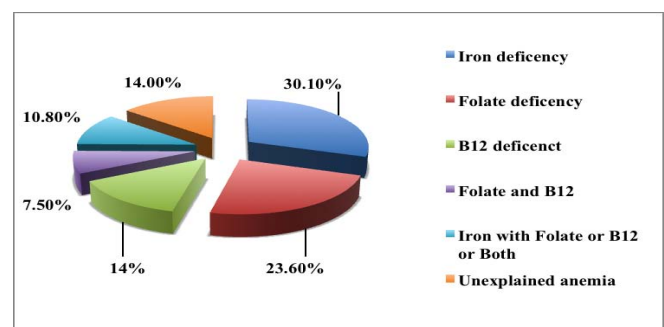
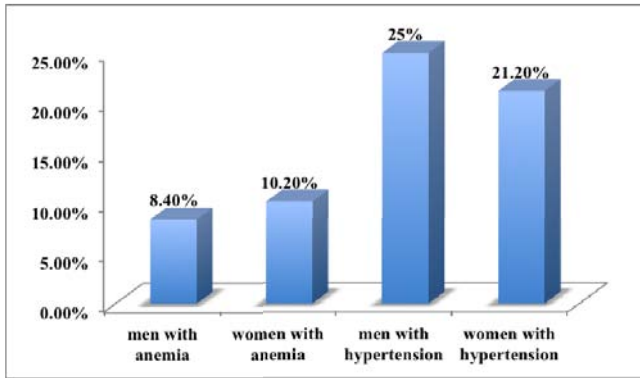


Figure 1: Distribution of types of anemia in population

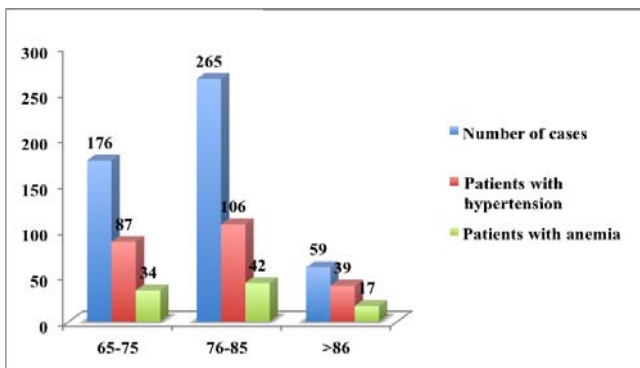
The average age was 71.89, with minimum age 65 and maximum 95 years old, Std deviation 11.5. The prevalence of

anemia was higher to women compared to men 10.2% and 8.4% respectively but in other hand prevalence of hypertension was higher to men compared to women 25% and 21.2% respectively. Men were 0.83 times higher in risk with hypertension compared to women with no significant association between them  $p=0.2$ , for 95% CI: [0.60 to 1.14] and women were 1.16 times in risk with anemia compared to men with no significant association between them  $p=0.5$ , for 95% CI: [0.74 to 1.81] (figure 2). The presence of anemia was independently associated with an increased risk of hypertension 95% CI  $p$  value  $>0.05$ .



**Figure 2:** Distribution of patients with anemia and hypertension divided by sex

In figure below we have presented number of patients with hypertension for each age groups. This prevalence is increased with age and peaking at 65-70 years in females and  $>71$  years in males. For each age group we have found a significant association between hypertension and anemia. For age group 65-75 years old  $p$  value resulted  $<0.0001$  for CI 95% [2.53 to 6.57], for age group 76-85 years old  $p$  value resulted  $<0.0001$  for CI 95% [2.34 to 5.34] and for age group  $>86$  years old  $p$  value resulted  $=0.0001$  for CI 95% [2.2 to 10.5].



**Figure 3:** Distribution of patients with anemia and hypertension divided by age groups

In table 1 we have presented socio-demographic characteristics associated with anemia and hypertension such as marital status, education level completed and employment are some of those data.

In table 2 and 3 we have presented data in relation to lifestyle and other important factor risk for hypertension and anemia.

## 4. Discussion

Our study was carried out to evaluate anemia and hypertension among elderly population in relation to factor risk like; family history, age, marital status, obesity, smoking, dietary habits and physical inactivity on Shkodër district of Albania. The present data was collected randomly from the patients presented to the primary care physicians and were accepted to be part of our study. Diagnostic criteria for anemia and hypertension were based on WHO and JNC VII guidelines. For anemia; each hemoglobin level of  $<10$  g/dL were evaluate as an anemia case and for hypertension each SBP  $\geq 140$ mmHg and/or DBP  $\geq 90$ mmHg were evaluate as a hypertension case [17, 18].

The prevalence of anemia in this study resulted 18.6% in all age groups. To women this prevalence was higher 10.2% compared to men 8.4%, but in other hand prevalence of hypertension was higher to men compared to women 25% and 21.2% respectively with no significance association between them. The presence of anemia was independently associated with an increased risk of hypertension 95% CI  $p$  value  $>0.05$ .

Iron deficiency is generally assumed to be the major cause of anemia globally [19, 20] and affecting a large number 30-40% of children and women in industrialized [21, 22]. Other factors may cause or be associated with anemia include nutritional deficiencies involving other micronutrients (folate, and vitamin B12), infectious and parasitic diseases (e.g., diarrhea, protozoa, geohelminthosis), glucose-6-phosphate dehydrogenase (G6PD) deficiency, and genetically derived hemoglobinopathies [23-25]. In our study Iron deficiency was higher compared to other types of anemia in 30.1% of all cases. A high prevalence was seen also for folate and B12 deficiency in 23.6% and 14% respectively. Unexplained anemia was seen for 14% of all cases.

All patients were divided into three age groups from 65 until to 95 years. Anemia and hypertension in our study was increases with age in both sexes. For each group we have found a significant association between anemia and hypertension with  $p$  value  $<0.0001$ .

For the collected data in relation to lifestyle and other important factor risk for anemia and hypertension (table 2 and 3) can be mention that a significant associate were been seen for more of this factors. A significant associate has been seen for obesity, physical activity and family history. Obesity persons were 0.39 times higher in risk in their life with a strongly significant association for  $p$  value  $=0.002$ , persons with family history were 0.34 times higher in risk with  $p$  value  $<0.0001$ . Persons that have a regular physical activity have a beneficial effect on hypertension compared to them without activity and activity was rarely performed. A strongly significant associate has been seen for persons with moderate activity with 95% CI [0.10 to 0.45  $p$  value  $<0.0001$ ] (table 1). About the factor risk for occurrence of anemia we have not found a significance associate between cardiovascular diseases, Diabetes, and intervention during last year's and to other factor risk we have not found a strong significant association explain to table 3.

This epidemiological transition could partially be explained by the rapid urbanization with changes in lifestyles, especially dietary habits and physical activity patterns and the group that appears to be most at risk for anemia and hypertension are those individuals of low to medium socio-economic status in urban areas [26].

## 5. Conclusion

The prevalence of anemia and high blood pressure among elderly of Shkodër district is high. It is a major problem with impacts on social and economic development of our life. We think this is result living in difficult financial conditions and constant stress due to the difficulty at life. More life style factors are significantly associated with anemia and hypertension. So there is an urgent need for calls attention to the elderly.

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**Table 1:** Socio-demographic characteristics associated with anemia and hypertension

<i>Socio-demographic Characteristics</i>	<i>Number of patients (500)</i>	<i>Patients with anemia (93)</i>	<i>Patients with hypertension (231)</i>
<i>Marital status</i>			
Married	302	57	137
Widow	198	36	94
<i>Education level completed</i>			
University	102	23	66
High school	329	51	108
≤ 8 years	69	19	57
<i>Employment</i>			
Employment	51	7	32
Retired	449	86	468
<i>Family monthly income</i>			
High level	38	9	21
Middle level	129	34	87
Low level	333	50	123

**Table 2** Regression logistic of risk factors associated with hypertension

<i>Characteristics of samples</i>	<i>Patients (500)</i>	<i>With hypertension (231)</i>	<i>Odds ratio (95% CI)</i>	<i>p value</i>
<i>Smoker</i>				
Never smoked	257	109	1 (reference)	
Current smoker	243	122	0.73 0.51 to 1.03	<i>p=0.08</i>
<i>BMI/Kg cm<sup>2</sup></i>				
<25	72	29	1 (reference)	
25-<30	284	108	1.09 0.64 to 1.86	<i>p=0.72</i>
>30	144	94	0.39 0.21 to 0.71	<i>p=0.0023</i>
<i>Alcohol intake</i>				
No users	231	96	1 (reference)	
Users	269	135	0.7 0.49 to 1.00	<i>p=0.054</i>
<i>Family history.</i>				
No	154	105	1 (reference)	
Yes	346	126	0.34 0.19 to 0.60	<i>p=0.0003</i>
<i>Physical activity</i>				
Yes	49	16	1 (reference)	
Some time	121	83	0.23 0.10 to 0.45	<i>P&lt;0.0001</i>
None	330	132	0.72 0.38 to 1.37	<i>p=0.3</i>

**Table 3** Regression logistic of risk factors associated with Anemia

Characteristics	Number of patients (500)	Patients with anemia (93)	Odds ratio (95% CI)	p value
<i>Eating animal products</i>				
No	96	56	1 (reference)	
Yes	404	37	13.88 8.18 to 23.54	<i>p&lt;.0.0001</i>
<i>Eating green leafy vegetables</i>				
No	67	39	1 (reference)	
Yes	433	54	9.42 5.38 to 16.51	<i>p&lt;.0.0001</i>
<i>Presence of parasites</i>				
No	476	84	1 (reference)	
Yes	24	9	0.35 0.15 to 0.84	<i>p=0.018</i>
<i>Presence of hypertension</i>				
No	269	24	1 (reference)	
Yes	231	69	0.23 0.13 to 0.38	<i>p&lt;0.0001</i>
<i>Presence of cardiovascular diseases</i>				
No	346	58	1 (reference)	
Yes	154	35	0.68 0.42 to 1.09	<i>p=0.11</i>
<i>Presence of diabetes</i>				
No	321	53	1 (reference)	
Yes	179	40	0.68 0.43 to 1.08	<i>p=0.10</i>
<i>Presence of other diseases</i>				
Yes	92	29	1 (reference)	
No	408	64	2.47 1.47 to 4.13	<i>p=0.0006</i>
<i>Presence of intervention during last years</i>				
No	448	85	1 (reference)	
Yes	52	8	1.28 0.58 to 2.83	<i>p=0.5</i>
<i>BMI/Kg cm<sup>2</sup></i>				
<25	72	17	1 (reference)	
25-<30	284	34	2.27 0.18 to 14.35	<i>p=0.01</i>
>30	144	42	0.75 0.39 to 1.44	<i>p=0.38</i>
<i>Family history</i>				
No	452	48	1 (reference)	
Yes	48	45	0.007 0.0024 to 0.0026	<i>p&lt;0.0001</i>