World Journal of Medical Sciences 8 (1): 52-55, 2013
ISSN 1817-3055

DOI: 10.5829/idosi.wjms.2013.8.1.66163

Prevalence of Hyperuricemia at Nepalgunj Medical College, Banke, Nepal

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Abstract: The prevalence of hyperuricemia is varied in different populations and it has appeared to be increased in the past decades. Recent studies have suggested that hyperuricemia is an independent risk factor for cardiovascular disease. One thousand eighty seven patients, attending Nepalgunj medical college and Teaching Hospital, Banke, Nepal from March 2011 to February 2012 were included in this study. The reference was ranged between 3.5-7.0 mg/dL in males and 2.6-6.0 mg/dL in females. Hyperuricemia was defined as a Serum Uric Acid level of more than 7.0 mg/dL in males and of more than 6.0 mg/dL in females. The uric acid was determined by uricase /PAP method. Test was performed in the central laboratory of Biochemistry, Nepalgunj Medical College and teaching Hospital, Banke, Nepal. 1487 studies were selected, the statistical information of which was collected for systematic analysis. The results have showed that the high prevalence of hyperuricemia was found in females(22.86%) as compared to males (18.98). It was found that 21-40 age group is on high risk for hyperuricemia. The prevalence of hyperuricemia was different as; the period of age and is increased after 21-40 years in male and in female. Serum uric acid level was high in female as compare to male.

Key words: Prevalence · Nepalgunj medical college · Hyperuricemia · Serum uric acid level

INTRODUCTION

The incidence of gout has been increased in middle-aged and older people globally during the last two decades and has been related to modernization [1-6]. Hyperuricemia is considered to be the most significant risk factor for gout [7, 8] and may play a role in the development of many degenerative diseases [9-17]. Hyperuricemia may be presented asymptomatically or manifested in gouty arthritis, uric acid nephropathy and nephrolithiasis [18]. The prevalence of hyperuricemia and gout had shown an increasing trend all over the world including in developing countries and dietary habits. The prevalence of hyperuricemia in Nepal and in the developing world has low studies than in the developed world [19].

MATERIALS AND METHODS

The retrospective study was planned on collection of 1487 patients serum for analyzation of uric acid level in the central laboratory of Biochemistry, Nepalgunj medical college, Nepalgunj, Nepal from March 2011 to February 2012. The reference range was 3.5-7.0 mg/dL in males and 2.6-6.0 mg/dL in females. Hyperuricemia was defined as a serum uric acid level of more than 7.0 mg/dL in males and of more than 6.0 mg/dL in females. [20-23]. The uric acid was determined by uricase/PAP method (Fossati and Prencipe, 1980) using the diagnostic reagent kit manufactured by Crest bio systems, a division of coral clinical systems Goa, India. Patients were categorized into males and females. The instructions, test procedure, reagents and accessories to follow were supplied with the kit.

RESULTS

Total 1487 patients were included in this study; 42.17% male and 57.83% female were tested for serum uric acid level. (Figure 1). Serum uric acid level found elevated in 247 patients and 1240 found within normal range. In 247 elevated cases 119 were male and 128 were female. In 1240 normal range cases 508 were male and 732 were female. Highest elevated level were found in the age group of [21- 40] (Table 1 and Figure 2). The prevalence of total patients was 16.61%. Prevalence of hyperuricemia of total

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Table 1: Prevalence of Hyperuricemia according to Age group wise distribution

	Serum uric acid			
Age	Normal	Elevated	Total	Prevalence rate (%)
0-20	152	35	187	18.71
21-40	583	96	679	14.14
41-60	366	80	446	17.94
60+	139	36	175	20.57
Total	1240	247	1487	16.61

Table 2: Sex wise prevalence of hyperuricemia

	Serum uric acid			
Sex	Normal	Elevated	Total	Prevalence rate (%)
Male	508	119	627 (42.17%)	18.98
Female	732	128	860 (57.83%)	22.86
Total	1240	247	1487 (100%)	16.61

Table 3: Prevalence of hyperuricemia according to Sex wise Distribution in different age groups

	Sex	
Age	Male	Female
0-20	9.24	18.75
21-40	35.29	42.19
41-60	36.97	28.13
60+	18.49	10.94
Total	18.98	22.86

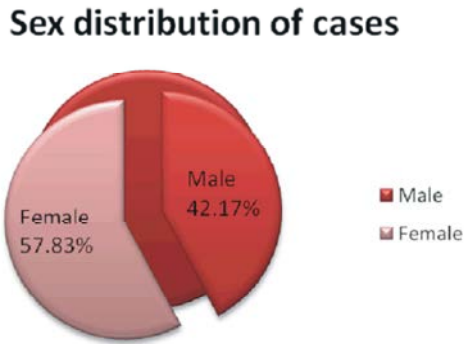

Fig. 1: Sex Distribution of cases

female was 22.86% and the prevalence of hyperuricemia of total male was 18.98% (Table 2). The highest prevalence of hyperuricemia of male found in the age group 21-40 and 41-60 (35.29% and 36.97%) and the highest prevalence hyperuricemia of female found in the age group [21-40] was 42.19%. (Table 3 and Figure 3).

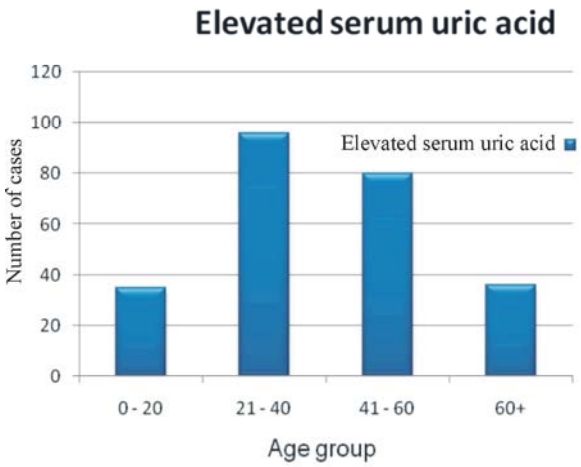

Fig. 2: Age group wise distribution of elevated level of serum uric acid in total patients

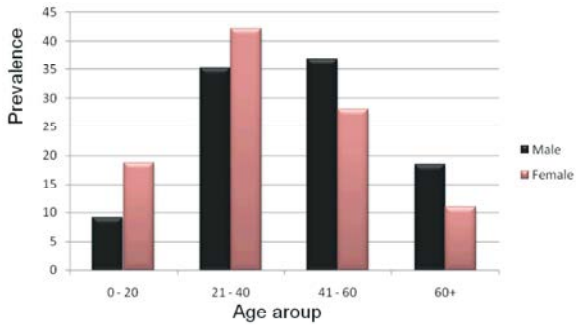

Fig. 3: The comparative prevalence of hyperuricemia of male and female in different age group

DISCUSSION

The prevalence of hyperuricemia was varied in different populations and areas. In Turkey 24, one study reported that 19% of the men and 5.8% of the women had hyperuricemia and the overall prevalence of hyperuricemia was 12.1% in the urban population. In Nepal 18, 3794 people which were from Chitwan districts were investigated and the prevalence of hyperuricemia was 21.42%. In Seychelle 20, the cross-sectional health examination survey based on a population random samples which have included 1011 subjects aged 25 to 64 years showed that the prevalence of hyperuricemia was 35.2% and 8.7% in men and women, respectively. In Thailand 25, an across-sectional study of 1381 patients who firstly participated in annual health examinations during the period of July 1999 through February 2000 reported that the prevalence of hyperuricemia was 10.6%, but it was 18.4% and 7.8% in men and women, respectively. In Java 26, the prevalence of hyperuricemia was investigated by a survey of a total population of

4683 rural adults and the result was 24.3%. In United States 27, the prevalence rate of asymptomatic hyperuricemia in the general population was estimated at 2-13%. The prevalence of gout and/or hyperuricemia increased about 2 cases per 1000 enrollees over 10 year (1990-1999) in the overall population. In Japan 28, a total of 9,914 individuals (6,163 men and 3,751 women aged from 18 to 89 years) who were screened at Okinawa General Health Maintenance Association was screened. The result showed that the prevalence of hyperuricemia was 25.8% and it was 34.5%, 11.6% in men and women respectively. In New Zealand 29, hyperuricemia was more common in Maori men (27.1%) than in European men (9.4%) and in Maori women (26.6%) than in European women (10.5%). In Saudi Arabia [73], the prevalence of hyperuricemia was only 8.84%. In Taiwan island of China 30, the prevalence of hyperuricemia was high to 49.4% in Ayatals, but it was only 27.4% in non-aborigines.

In our study the prevalence of hyperuricemia seemed to be higher in female as compared to male; it was 22.86% in female and 18.98% in male. The age specific prevalence in this study was also found to be higher (20.57%) in more than 60 year age groups and 18.71% was in age group 0-20 %. From the analysis, it had found that age and sex affected the serum uric acid levels and the prevalence of hyperuricemia.

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