

Health status of the Ex-British Nepalese army men who underwent General health check-up in TUTH

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Background: Most Nepalese without major recognizable medical symptoms in their lives, do not feel the need for a whole body checkup. If we timely evaluate their health, we can prevent ongoing major complications and even sudden unexplained death. If we do regular good health checkups every 1-2 years generally after 35 yrs. of age, we can detect diseases in its very early stage. This simple measure helps to prevent major serious complications.

Methods: The total number of candidates between age groups of 33-46 years, during the 1 August 2004 to 30 July 2005, was 100 Nepalese Ex-British army men. They were presenting to IOM, TUTH General health checkup department with the detail evaluations of their clinical histories, signs and all basic investigations without meat diet 18 hours before were done. All candidates came in fasting at 9 AM to the department for investigation of, total Hb, Sugar, Urea, Creatinine, SGPT, Lipid profile, Uric Acid, VDRL, Urine R/E, Stool R/E, Blood grouping, E.C.G., X-ray chest, USG of Abdomen, HBsAg, HIV, etc.

Results: Amongst the 100 Nepalese Ex-British army men between 33 to 46 yrs. of age. They thought that they were physically and mentally fit for the work without any ongoing major problems.

On routine whole body examination: 22% of the candidates were diagnosed with hypertension, which they did not know before evaluation. Similarly 74% of candidates had high BMI ranging from 25-29.9%. Most of them were unaware of increased body weight. There was a correlation between high BMI and hypertension. The higher the BMI, higher was the Blood Pressure 66.66%. Similarly lower the BMI was lesser the Blood Pressure 7.69%. 18% of them were detected with high Triglyceride level (TG). 30% had raised Uric Acid level. 19% of them had fatty liver.

A high BMI is related to rise in TG level. i.e. 11.54% among normal BMI and 66.67% in high BMI cases. Fatty liver was 11.53% among non-Alcohol and 21.62% among alcohol using groups. Raised TG level from 11.53% among non-Alcohol to 17.53% among Alcohol group. Use of Alcohol was not related to raised BMI. Similarly with Uric Acid also, not much difference was detected with non-alcohol group. Among Alcohol taking group, 21.62% had fatty liver and slight rise of TG 17.53%.

Conclusion: The casual whole body checkup showed very significant and alarming findings. If they hadn't come for whole body checkup in order to work abroad as guards, they probably might have stayed at home with all the correctable problems and could have developed complications in near future. The data collection showed a clear relationship between high BMI and High Blood Pressure, high Triglyceride and Fatty liver. If we are able to maintain our standard body weight, then one might have very good robust health. A alcohol intake showed certain percentage of Fatty liver and high TG. One must not take more than standard amount of alcohol in order to maintain normal BMI & BP.

Introduction

In 1986 for the first time in Nepal, General health (whole body) check up in IOM, TU Teaching Hospital, Maharajgunj, Kathmandu was started. Department of General practice was formed in 1988, which was the first postgraduate program in Nepal. Such type of whole body check up to do routine evaluation with all basic investigations is being charged at present Rs.2, 000 only in IOM TUTH. The price quoted is higher in comparison to similar checkups from out patient department. But it definitely provides very good screening & detects lots of asymptomatic problem, making them aware of the need of General health checkup to prevent lots of preventable diseases and their complications & unexplained deaths¹.

During the past several decades, advances in medicine have significantly reduced the morbidity and mortality associated with a number of common medical conditions including heart disease, stroke, infectious diseases & diabetes^{2,10}. Despite these medical awareness, many preventive practices known to improve patient health are not being implemented in the family practice setting. Because of the relationships family physicians share with their patients over, they can give timely advices in preventing onset of many chronic diseases and minimize the complications associated with existing diseases.

The Importance of Prevention: -

Preventable diseases remain significant factor to mortality and morbidity even in United States². It is estimated that about 400,000 deaths each year are related to cigarette smoking, another 300,000 deaths are related to unhealthy diet or insufficient physical activity and yet another 100,000 to excessive alcohol use in USA.^{3,4}

Obesity : - Overweight is defined as a body weight disproportionate to an individual height². Obesity refers significantly to excess body fat⁵. Obesity further defined by the National Institute of Health (NIH) as a BMI greater than 30kg/m square, is a significant risk factor for coronary heart disease, type 2 diabetes, hypertension, elevated cholesterol, stroke and some types of cancer. There may be some exceptions to this definition . For example, some persons with muscular body structures might have BMI values greater than 30kg/m square without being considered obese.

International obesity task force has stratified patients in different classes of obesity. BMI of less than 18.5 is categorized as underweight (low), a BMI of 18.5 to 24.9 is defined as normal (average), BMI of 25 to 29.9 as overweight (mildly increased) and a BMI of 30 or greater as obese, BMI of 30 to 34.9 class 1 is classified as moderate obese, BMI of

35 to 39.9 as class 2 severe obese and BMI of greater than or equal to 40 is as class 3 or very severe.

Body mass index (BMI), expressed as Kg/m square to convert weight in Pound/2.2 = weight in kilograms; height in inches X 0.0254 = height in meters⁶.

American Heart Association (AHA) guidelines for the prevention of Cardiovascular disease recommends target BMI between 18.5 and 24.9 kg/m square regardless of age^{2,22}.

Blood Pressure Control: - AHA guidelines recommend a blood pressure goal of less than 140/90 mm Hg (*Table 1*). For patients with renal insufficiency less than 130/85 mm Hg and for the patients with diabetes less than 130/80mm Hg².

Interventions to reduce blood pressure emphasize initiating healthy lifestyle changes¹⁴ that include maintaining a healthy weight, reducing sodium intake, increasing the consumption of fruits, vegetables and low fat dairy products, moderation of alcohol intake³ < 21 unit a week in male & < 14 units in female and increased physical activity, avoidance of use of non steroidal anti inflammatory and steroids^{12,24}. Mild hypertension with end organ damage estimated, 10yr risk of Coronary heart disease is 30% or more^{3,4}.

Family history of hypertension will suggest essential hypertension and secondary hypertension is seen around 5% of cases in the community. The commonest cause of hypertension is renal parenchymal disease.

Obesity generates great social and financial costs.

An estimated 97 million adults in USA are obese (BMI >30), represent 31.3% of men and 34.7% of women. The costs to society are both direct and indirect, and include increased medical expenses, loss of productivity in the work place^{5,13,15}.

Table 1. Categories for blood pressure levels in adults

Category	Blood pressure level	
	Systolic(mmHg)	Diastolic (mmHg)
Normal	<120 and	<80
Pre hypertensive	120-139 or	80-89
Hypertension, Stage 1	140-159 or	90-99
Hypertension, Stage 2	>=160 or	>=100

From the seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure (JNC7)^{6,7}.

Blood Pressure: - Excess weight and even modest adult weight gain substantially increases the risk of hypertension whereas weight loss reduces the risk of hypertension^{4,9,14}. Second clinical trails have found that short-term weight loss reduces blood pressure in hypertensive patients or persons with high normal blood pressure^{16,17,18}. However, the long-term efficacy of this approach for controlling blood

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pressure is not well established. Because treating hypertension over a long period is costly⁹, the best approach for the control of hypertension in the general population is primary prevention. The degree to which long-term weight loss effectively prevents or delays the onset of hypertension in a normotensive population has important public health implications.^{19,20,21}

Alcoholic Fatty Liver: - Pathologic changes observed in patients with alcohol-induced liver disease can be classified in the following 3 groups . Alcoholic fatty liver (Simple Steatosis), alcohol hepatitis (inflammation of liver) and Cirrhosis (scarring) . Alcohol-related fatty liver is an early and reversible consequence of excessive alcohol consumption⁷.

Simple steatosis (alcohol fatty liver) is rarely fatal with complete abstinence, histologic changes can return in such case, continued alcohol consumption may result in more advanced forms of liver disease, either hepatitis or cirrhosis. Blacks had a highest volume of intake of alcohol and study showed a higher rate of cirrhosis among blacks⁸.

Objectives

To determine the incidence of various diseases among the Nepalese Ex-British army personnel with no medical problems, presenting to General health Check up Department from 1st August 2004 to 30th July 2005.

Methodology

A cross sectional descriptive study was conducted. The target population was the candidates of Nepalese Ex-British Army Men who wanted to work as security guard abroad. A total of hundred candidates took part in evaluation. All of them were examined in IOM TU Teaching Hospital, Maharajgunj, Kathmandu, Nepal in the Department of General Health checkup from 1st August 2004 to 30th July 2005. All the candidates were explained about the rules of checkup as follow:-

1. No meat diet 1 day before examination,
2. All of them should be in mandatory fasting state
3. Compulsory collection of their urine and stool before the check up.
4. Advice to take Sugar (F), Urea, Uric Acid, Creatinine, Total haematocrit , Urine RE, Stool RE, X-ray Chest , ECG, Blood Grouping, VDRL, Lipid Profile, SGPT, USG of abdomen with holding of 2hrs. urine.

Practice nurse conducted the measurement of heights in cm, weights in Kg. and blood pressure, vision . The all pre requisites for evaluation and the mean difference was assessed by the chi square test.

Chi square test was used to test significance of differences in some variables. The study was approved by the Department of General Practice.

Inclusion Criteria

1. Nepalese Ex-British Army men wanted to work abroad.
2. Evaluation of these Ex- Army Men in IOM, TUTH General Health Checkup Department with history of no systemic illness. They were aged between 33 and 46 & all of them were male .

Exclusion Criteria:

1. Other than Nepalese Ex-British Army men, with any communicable disease.

Result

There were 100 Nepalese ex-British Army men. All of them were male of age between 33 to 46 yrs.

On routine whole body evaluation of 100 patients, 5 had high blood pressure (BP). and, 22 had been newly diagnosed as hypertensive with , high systolic blood pressure, which they did not know before this evaluation.

Similarly 14 candidates were detected with high diastolic BP.

Body Mass Index (BMI):

All together 74 candidates were found with high BMI value. Among them, 71 candidates were detected with high BMI (25-29.9%) & 3 of them had obesity (BMI >30).

Table 2. Body Mass Index and it relation with systolic blood pressure, diastolic blood pressure, Triglyceride, uric acid and alcohol use

Body mass index	Outcome variables		P-value and 95% CI
Body mass index Vs systolic blood pressure			
BMI	Systolic BP Raised mm of Hg	Systolic BP Normal mm of Hg	
<25	2 (7.69%)	24	0.02
25-29.9	23 (32.39%)	48	
>= 30	2 (66.67%)	1	
Body mass index Vs diastolic BP			
BMI	Diastolic BP raised mm of Hg	Diastolic BP Normal mm of Hg	
<25	0 (0%)	26	0.003
25-29.9	17 (23.94%)	54	
>= 30	2 (66.67%)	1	
Body mass index Vs uric acid (micro mol/L)			
BMI	High uric acid	Normal Uric acid	
<25	5 (19.23%)	21	0.38
25-29.9	24 (33.80%)	47	
>= 30	1 (33.33%)	2	
Body Mass Index Vs Triglyceride (m mol/L)			
BMI	High Triglyceride	Normal Triglyceride	
<25	3 (11.54%)	23	0.06
25-29.9	13 (18.31%)	58	
>=30	2(66.67%)	1	

Table 2. Descriptive statistic: It clearly shows that higher the value of BMI, then proportionately higher is the

percentage of BP(66.67% cases). Similarly a few cases of lower BMI, were too detected having raise BP, but it came around to 7.69% only. For the diastolic BP also, higher the BMI higher the diastolic BP (66.67% cases). 18 candidates had raised Triglyceride level. It increased from 11.54% (BMI <25) to 66.67% (BMI >30). 30 candidates were detected with high uric acid level. If we compare with BMI than it increased from 19.2% (BMI < 25) to 33.33% (BMI >30). 74 candidates took alcohol. If we try to show its relation with high BMI than there was not much difference in comparison to BMI with alcohol & non- alcohol user group.

Analytic statistics of BMI and it's relation with Systolic Blood pressure, diastolic Blood pressure, Triglyceride, Uric acid & Alcohol use were assessed. It was found that BMI with 25 to 29.9 (over weight) was related with raised systolic BP (p value < 0.05). Similarly raised BMI with 25 to 29.9 were associated with raised diastolic BP (p value < 0.05). P values of significant differences with BMI and BP show that higher the BMI index higher the chances of BP. The test was analyzed by Chi- square test. If we compare the BMI Vs Uric acid and alcohol user, both were found to be insignificant with high BMI. BMI with TG was analyzed, it was found that very few three individuals had BMI greater than equal to 30. Among that two individuals were found with high TG value. However among 25-29.9 MBI, 18.31% were with high TG values. Therefore, data reveal that increasing BMI, the TG value has been raised from 11.54% to 66.67%. But the statistical results reveal, no significant association between BMI & TG value (p 0.06).

Table 3. Use of alcohol and its relation with fatty liver, Triglyceride, uric acid and blood pressure

Alcohol use	Outcome variables		P-value, Odds ratio (95% CI)
Alcohol use Vs fatty liver			
Alcohol use	Fatty liver	Normal liver	
Yes	16 (21.62%)	58	0.39,
No	3 (11.53%)	23	2.11 (0.53, 12.30)
Alcohol use Vs Triglyceride			
Alcohol use	Raised Triglyceride	Normal Triglyceride	
Yes	14 (18.91%)	60	0.78,
No	4(15.38%)	22	1.28 (0.35, 5.92)
Alcohol use Vs uric acid level			
Alcohol use	Raised uric acid	Normal uric acid	
Yes	22 (29.72%)	52	0.92,
No	8(30.76%)	18	0.95 (0.33-2.81)
Use of Alcohol Vs Body Mass Index			
Use Alcohol	High Body mass Index	Normal Body Mass Index	
Yes	55 (74.32%)	19 (25.67%)	0.90,
No	19 (73.07%)	7 (26.92%)	1.07 (0.34 to 3.24)
Alcohol use Vs systolic blood pressure			
Alcohol use	Raised systolic BP	Normal systolic BP	
Yes	19 (25.67%)	55 (74.32%)	0.62,
No	8(30.76%)	18 (69.23%)	0.78 (0.26, 2.33)

Table 3. Descriptive statistics of alcohol user in relation with fatty liver, Triglyceride, uric acid and BP.

Among them, 19 candidates were detected having fatty liver.

Those who took alcohol had slightly higher incidence of fatty liver 21.62% compare to non-alcohol groups. A total of 18 candidates were detected having high TG level. If co-related with non-alcohol user group then there was slightly raise of TG level in 15.38% cases as against the 18.91% with alcohol user groups. For the uric acid level, there was not much difference as indicated by 30.76% (non alcohol group) to 29.72% (alcohol group). If we checked relationship with BP than those who took alcohol were found to have blood pressure 25.67% cases compared to non-alcohol group 30.76%²³ Use of alcohol in relation with body mass index was analysed and no significant difference was found (P > 0.05).

Analytic Statistics of Alcohol user and it's relation with Fatty liver, Triglyceride, Uric Acid and BP were assessed.

It was found that these all variables did not have any relation with use of alcohol. However when we looked odds ratio among alcohol users with fatty liver, it was 2 times more than non-alcohol users. Confidence interval for this odds ratio is also not significant. Further alcohol users were looked with Triglyceride values. Result reveals that among alcohol users, Triglyceride was higher 1.28 times more than non-alcohol users. For this also odds ratio is not significant at 95% confidence interval.

Table 4. Fatty liver and it's relation with Triglyceride:

Fatty liver	Outcome variables		P-value, Odds ratio (95% CI)
Fatty liver Vs Triglyceride			
Fatty liver	Raised TG	Normal TG	0.74
Yes	4 (21.05%)	15	1.28 (0.27, 4.88)
No	14(17.28%)	67	

Table 4: Amongst those who had fatty liver, possibility of slight more candidates of raised Triglyceride level was found in 21.05.

Analytic statistic of Fatty liver and its relation with Triglyceride. It was found that there was no relation between fatty liver and Triglyceride level. P values = 0.05.

Table 5. Triglyceride statuses and its relation with uric acid:

Triglyceride Vs Uric acid			
Triglyceride	Raised uric acid	Normal uric acid	P-value, Odds ratio (95% CI)
Raised TG	10 (55.55%)	8	0.009
Normal TG	20 (24.39%)	62	3.88 (1.20, 12.72)

Table 5. Descriptive statistic of raised Triglyceride in relation to high uric acid level. The table showed that 24.39% of raise uric acid with normal TG level to 55.55% of raise uric acid with raise TG level.

Analytic statistic of Triglyceride and its relation with uric acid. It was found that uric acid was significantly raised among raised Triglyceride groups. The odds ratio at 95% confidence interval was significant. Higher Triglyceride level will have 7 times more uric acid than normal Triglyceride.

Discussion

There were lots of information gathered during casual whole body checkup of 100 Nepalese Ex-British Army men wishing to work abroad as security guard. All of them were male between ages of 36-46 yrs.

Among them 22 candidates had raised Systolic BP & similarly 14 candidates were having high Diastolic BP. They didn't know that they had high Blood Pressure in the past. If they had not come for general body check up then they might have lots of complication morbidity and sudden unexplained mortality in coming days.

Similarly 74 candidates were detected with high BMI. Among them 71 person were having high BMI between 25-29.9 % & 3 of them had very high BMI i.e. more than 30. This also indicates the clear view of unawareness of high body weight, even though they did not give the importance of maintaining the body weight. It was clearly observed that higher BMI, proportionately higher was the percentage of BP & lower values of BMI were associated with lower blood pressure. This figure clearly shows that if we were able to maintain the level of BMI in optimum level then one can control the possibility of having high Blood Pressure.

Higher BMI would have high possibility of increased diastolic BP & none of the normal BMI had high diastolic BP in this study. Probably, candidates who were selected were, most of them from wealthy group. There were 18 candidates having high TG levels. This figure is also quite high & the relation with BMI clearly shows that higher the no. of BMI higher will be the chances of raised TG level.

Similarly 30 candidates were detected with high Uric Acid level. If we compare BMI versus Uric Acid level, it clearly showed that higher the no. of BMI value greater will be possibilities of high Uric Acid level.

19 candidates were detected with Fatty Liver & 18 with high TG level. There was correlation with alcohol intake. But those who took alcohol, the number of fatty liver was almost double 21.62% as compared to non-alcohol group was found 11.53 % . Similarly slightly high TG Level 19.91% was found compare to non-user 15.38%. So alcohol shows slight relation with Fatty Liver & high TG level.

Higher the BMI, higher will be the possibility of high Blood Pressure. Though number of samples are very low, it gives some suspicions for future evaluation.

Conclusion

People do require whole body checkup at least once a year after the age of 35yrs to know lots of hidden problems. This report clearly shows that significant number of high Blood pressure, high BMI, high TG level, high uric acid level cases

were detected during routine general health check up. If somebody has high BMI then there may be high possibility of high BP, TG, and Uric Acid. Similarly Alcohol is also related with raise in BMI, fatty liver & TG but not so much related with uric acid & blood pressure. This report definitely gives us some ideas of possibility of unknown body problems which can be controlled easily & may reduce morbidity & unexplained death in coming days and help make healthy normal life. If we become aware of medical problems in it's early stage then with proper medical advice, one can prevent dangerous health complications & make life healthy . By this we can save lots of money.

If we are able to maintain BMI then lots of problem will be automatically managed & we can maintain a healthy life with normal BP, TG, Uric Acid & Fatty liver. Imagine what will happen if they didn't come for general health checkup. Whoever comes for checkup most of hem are lucky to find their problems earlier. The simple burden of Health checkup for security guard post made them aware of the existing health problems. So health check up helps and makes people healthy just with a small amount of money. The regular checkup will bring lots of benefits to the community both in short and long term. If we are able to detect few problems in routine evaluation then early management of that disease will help to prevent dangerous complications. If anybody has doubt about the possibilities of medical illness and has a strong family history of non-communicable diseases he must undergo routine regular general health check up.

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