

Health profile of middle aged men and women residing in Bikaner city of Rajasthan

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■ **ABSTRACT** : A study was conducted on 100 middle aged each male and female subjects residing in urban areas of Bikaner city (Rajasthan). The results revealed that 54 per cent of the male subjects were preobese (BMI 26-29.99 kg/m²) and 83 per cent of them had almost normal WHR (0.96-0.98). Among female subjects majority (59%) of them were found to be obese with 27.18 to 28.09 kg/m² BMI and 0.86 to 0.87 WHR. Blood pressure levels were found to be normal for both men and women. Majority of the male subjects (64%) had 12-13.9mg/dl haemoglobin levels but majorities (78%) of women were found anaemic (9.55 g/dl to 10.44 g/dl Hb). The mean blood glucose level of men and women was found to be 127.7 ± 19.19 mg/dl and 114.26 ± 14.0 mg/dl. In case of men most of the parameters of lipid profile (Total cholesterol, Triglycerides, HDL-C, VLDL-C, TC/HDL ratio, LDL/HDL ratio) were above normal. Except triglycerides all the constituents of lipid profile in women were found to be within normal range. High prevalence of general obesity among both men and women and presence of anaemic condition in women emphasized urgent need for nutrition education amongst the subjects residing in the study area.

■ **KEY WORDS** : Obesity, Anaemic, Lipid profile, Triglycerides, Nutrition education

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Middle age is a period of life when aging process starts. There are various physiological and psychological changes especially in women which in turn affect their nutritional status. Natives of Rajasthan have different food habits. Due to scarcity of water and ample availability of cattle and poor cropping of green leafy vegetables, as per social practices and customs people use large quantities of fat and sugar to prepare their meals to improve the palatability of food.

The change in physical activity level due to age and life style associated with developmental transition may promote unhealthy conditions. Obesity is becoming the most important contributors to ill health. It is also seen that as the population ascends the socio economic scale, cereal intake gradually declines with increase intake of sugar and saturated fats (Gopalan, 1998). Raghuram *et al.* (2000) have suggested that carbohydrate, protein and fat should comprise 60-65 per cent, 15-20 per cent and 15-25 per cent of the energy in

a normal diet. The supply of fat from animal foods has increased by 14g and 4g per capita in developing and industrialized countries (WHO, 2003). In India most of the confections are dense in sugar and jaggery. Dietary fat contributes both positively and negatively to the health and well being of human. The pattern of fat and sugar consumption is associated with various diseases like development of cardiovascular diseases (CVD), hypertension, diabetes and obesity. CVD has become one of the major causes of morbidity and mortality in India (Ramachandran *et al.*, 2000). Keeping all this in view the present investigation was undertaken with the objective of assessing the health status of subjects.

■ RESEARCH METHODS

The research was conducted on 100 middle aged each men and women residing in different urban areas of Bikaner. The subjects were selected on the basis of convenient

sampling technique.

Collection of data includes :

Anthropometric parameters :

Height (Cameron, 1978) and weight (Robinson *et al.*, 1988) were measured for calculating their body mass index (BMI) (James *et al.*, 1988). Along with this waist and hip circumference of the subjects were measured to calculate the waist hip ratio (WHR) to assess prevalence of abdominal adiposity (Jones *et al.*, 1986).

Biophysical assessment :

Blood pressure of the subjects was estimated (Chatterjee, 1976).

Biochemical assessment :

–Haemoglobin level was estimated to assess the prevalence of anaemia with use of haemoglobinometer as described by Dacie and Lewis (1975).

–Blood glucose test was carried out with glucometer to assess the random blood sugar level (WHO, 2000).

–Lipid profile including serum cholesterol, serum triglyceride lipoprotein i.e. low density lipoprotein (LDL), High density lipoprotein (HDL) and very low density lipoprotein (VLDL) cholesterol were estimated for all the subjects as per the process adopted by Thyrocare Technologies Ltd. (<http://www.charbi.com>).

RESEARCH FINDINGS AND DISCUSSION

The results of the above study revealed that the mean weight of male and female subjects was higher than the reference standard weight. Most of the male and female subjects were diagnosed as pre obese on the basis of BMI classification given by WHO (2000) indicating health risk for them. The mean waist- hip ratio for male subjects was within normal limit *i.e.* >1 whereas for female subjects the mean WHR value was noted to be slightly higher than the standard value (< 85) pointing towards greater health risk (Table 1). Kuczmarski (1989) also reported that with aging, centralization and internalization of body fat occurs, therefore, measurement of adipose tissue on the trunk becomes better predictor of overall fatness.

| Parameters | Men | Women | Standard value | |
|--------------------------|------------------|-------------------|----------------|-------|
| | Mean \pm S.D. | Mean \pm S.D. | Men | Women |
| Height (m) | 1.69 \pm 0.062 | 1.55 \pm 0.043 | 1.71 | 1.52 |
| Weight (kg) | 77.6 \pm 10.32 | 65.63 \pm 10.30 | 60 | 50 |
| BMI (kg/m ²) | 27.1 \pm 3.41 | 27.18 \pm 3.77 | 18.50 | 24.99 |
| WHR | 0.97 \pm 0.031 | 0.86 \pm 0.14 | 1.0 | 0.85 |

Table 2 reveals that the mean values of systolic and diastolic blood pressure was within normal limits for both

men and women. The subjects were not found to be suffering from abnormalities of their blood pressure.

Table 2 : Blood pressure level, haemoglobin & blood glucose level of the subjects

| Parameters | Men | Women | Standard value | |
|-----------------------------|-------------------|-------------------|----------------|-------|
| | Mean \pm S.D. | Mean \pm S.D. | Men | Women |
| Systolic (mmHg) | 129.5 \pm 5.93 | 125.9 \pm 7.50 | < 140 | < 140 |
| Diastolic (mmHg) | 84.6 \pm 6.66 | 85.15 \pm 5.02 | < 90 | < 85 |
| Haemoglobin (g/dl) | 13.64 \pm 0.81 | 9.99 \pm 1.77 | 14-15 | > 12 |
| Blood glucose level (mg/dl) | 127.7 \pm 19.19 | 114.26 \pm 14.0 | < 200 | < 200 |

Level of haemoglobin of an individual is widely used as an index for the assessment of nutritional status, because its synthesis is sensitive to the deficiency of several nutrients such as protein, iron, vitamin C and folic acid (Phadnis and Chandrashekar, 1972) and it is dependent on healthy food practices (Anderson *et al.*, 1982). During present investigation the male subjects were found to be having slightly lower Hb levels when compared to the standard values. Most of the women were anaemic as the mean Hb values for women were noted to be 9.99g/dl which is less than standard value (Table 2). Almost similar haemoglobin status (7-10.5 g/dl) was also reported by Arora (1994) while studying nutritional status of middle aged women (40-60 years) residing in Punjab.

Blood glucose level is an important determinant of the healthy status of a person. According to Shetty (1997), adults have a major risk factor for NIDDM. Results of the present study indicated normal blood glucose level of all the subjects. The results of the present study are in harmony with the study of Mayer *et al.* (2005) in which similar range of blood glucose *i.e.* 97.8 \pm 2.04 to 150.21 \pm 8.64 mg/dl was observed in menopausal subjects residing in urban areas of Tetagarh, U.P.

Table 3 indicates that all the male subjects had their serum cholesterol at “borderline high” level whereas all the female subjects were having normal cholesterol level. The serum triglyceride level of male and female subjects was found to be higher 176.2 \pm 86.5 to 191.6 \pm 103.9 when compared with standard value <150mg/dl suggested by

Table 3: Mean values of the lipid profile of the subjects

| Parameters | Men | Women | Suggested value |
|--------------------------|-------------------|-------------------|-----------------|
| | Mean \pm S.D. | Mean \pm S.D. | |
| Total cholesterol (mg %) | 203.4 \pm 33.3 | 177.2 \pm 32.4 | < 200 |
| Triglycerides (mg %) | 176.2 \pm 86.5 | 191.6 \pm 103.9 | < 150 |
| HDL-C (mg %) | 38.85 \pm 9.06 | 42.34 \pm 12.24 | 30-703 |
| LDL-C (mg %) | 123.47 \pm 32.1 | 98.78 \pm 20.24 | 80-160 |
| VLDL-C (mg %) | 41.15 \pm 16.9 | 37.33 \pm 21.90 | 20-40 |
| TC/HDL ratio | 5.43 \pm 1.57 | 4.72 \pm 1.90 | 3-5 |
| LDL/HDL ratio | 3.29 \pm 1.15 | 2.56 \pm 0.82 | 1.5-3.5 |

Raghuram *et al.* (2000). The results are in concordance with Brennan (1985), who also found such results.

HDL-C and LDL-C was found within normal level for male and female subjects. In conformity with present findings Singh *et al.* (1994) also observed non-significant difference in HDL-C levels among 463 adult women receiving normal diet. According to Table 3, in male subjects high ratio of TC/HDL and LDL/HDL indicates that there was high level of bad cholesterol (LDL) but lower level of good cholesterol (HDL) which shows increase risk of heart disease. In female subjects all values of VLDL-C, TC/HDL and LDL/HDL ratio were found to be in normal range.

Results indicate that regional and socio-cultural difference affect greatly the dietary pattern as excess intake of fat/ oil and sugar/ jaggery and low intake of iron led to obesity and anaemia. So, there is a need of nutrition education to the subjects regarding importance of balanced and low fat diet.

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■ REFERENCES

- Anderson, M.P.H., Dibble, M.V., Turkki, P.R., Mitchell, H.S. and Rynbergen, H.J. (1982). *Nutrition in health and disease*, J.B. Lippincott Company, 17: 38-39.
- Arora, D. (1994). Nutritional status of middle aged women (40-60 years). *J.Nutr.*, 17(4): 415-420.
- Brennan, P.J., Simpson, J.M., Blacket, R.B. and Gilchrist, C.A. (1986). The effects of body weight on serum cholesterol, serum triglycerides, serum urate and systolic pressure. *Nutr. Abs. & Rev.*, 51(2): 130.
- Cameron, N. (1978). *The methods of auxological anthropometry. Human growth*. Falkner, F. and Tanner, J.M. (eds.) Plenum Press, New York and London. 2.
- Chatterjee, C.C. (1976). *Human physiology*. Medical Milled Agency, Calcutta. 9(1): 105-106.
- Dacie, J.V. and Lewis, S.M. (1975). *Practical haematology*. Churchill and Livingston. 5: 31.
- Gopalan, C. (1998). Obesity in the Indian urban middle class. *NFI Bull.*, 19(1): 1-3.
- James, W.P.T., Ferro-Luizi, A. and Waterlow, J.C. (1988). The definition of chronic energy deficiency in adults. *Eur. J. Clin. Nutr.*, 42 (12): 968-981.
- Jones, P.R.M., Hunt, M.J., Brown, T.P. and Norgon, N.G. (1986). Waist hip circumference ratio and its relation to age and overweight in British men. *Human Nutrient: Clinical Nutr.*, 40 (3) : 239-247.
- Kuczmarski, R.J. (1989). Need for body composition information in elderly subjects. *Am. J. Clin. Nutr.*, 50(5): 1150-1157.
- Mayer, L., Dymrna G., Jack, W., Erin, K. and Deborah, G. (2005). Body fat redistribution after weight gain in women with anorexia nervosa. *Am. J. Clin. Nutr.*, 81(6) : 1286-1291.
- Phadnis, L. and Chandrashekharan, K.N. (1972). Assesment of nutritional status. Report of the All India Summer Institute in Human Nutrition, 125.
- Raghuram, T.C., Pasricha, S. and Sharma, R.D. (2000). *Diet and diabetes*. National Institution of Nutrition. ICMR, Hyderabad. 11-16.
- Ramachandran, S.V., Pasricha, S., Vigver, L.P.L. and Padmavati, P. (2000). Cholesterol and heart disease. *Nutrition*, 30: 3- 13.
- Robinson, C.H., Lawler, M.R., Chenoweth, W.L. and Garwick, A.E. (1988). *Normal and therapeutic nutrition*. Macmillan Publishing Co., New York, 17:365-383.
- Singh, R.B., Sharma, V.R. and Gupta, R.K. (1994). Nutritional modulators of lipoprotein metabolism. *J.Am. College Nutr.*, 11(4): 391-398.
- Shetty, P.S. (1997). Obesity and physical activity. *Bull. Nutr. Foundation India*, 18 (2): 1-5.
- WHO (2000). Obesity preventing and managing the global epidemic. WHO expert committee. WHO Technical Report Series. No. 894, 253.
- WHO (2003). Diet, nutrition and prevention of chronic diseases. Report of a joint WHO/ FAO expert consultation. WHO Technical Report Series, 916. WHO, GENEVA, SWITZERLAND.

■ WEBLIOGRAPHY

Thyrocare Technologies Ltd. <http://www.charbi.com>.

