GENERAL AND ABDOMINAL ADIPOSITY AND ITS POTENTIAL RELATION TO CONTROL OF SEIZURE ATTACKS: A CROSS SECTIONAL STUDY AT MAKATI MEDICAL CENTER

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Introduction

Thirty-four percent of seizure patients are obese.[7] Seizures can be effectively reduced or eliminated by medications, surgery, devices, and dietary or other therapies. However, improving seizure control using prevention strategies such as lifestyle change has not yet been proven. Increasing concerns about the high prevalence of obesity in patients with epilepsy may raise the possibility of a causal link between obesity and epilepsy. Patients with epilepsy may have greater risk for obesity than the general population because they are often sedentary and may be treated with weight gain-causing medications such as valproate (VPA) and pregabalin (PG) and because epilepsy could potentially affect hypothalamic neuroendocrine control of energy homeostasis, akin to its effect on reproductive endocrine function.[15, 16] This study aimed to determine whether lifestyle prevention strategies, particularly maintaining an ideal body weight, could be useful in epilepsy.

Thus, this study aimed to evaluate the association of malnutrition (underweight, overweight and obesity) using World Heath Organization (WHO) Criteria and International Diabetes Federation (IDF) cut-offs for Asians (body mass index (BMI), waist circumference (WC) and waist-to-hip ratio (WHR)) with the frequency of seizure attacks among adult Filipino patients with localization-related seizures.

Methods

Patients with localization-related seizures, age ≥ 18 years, with at least 1 year follow-up with neurologist and with seizure diary

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Met the inclusion/exclusion criteria

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informed consent obtained

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Study subject, demographic data, epilepsy data, (primary diagnosis, ILAE classification, duration of illness), antiepileptic medications (duration, dose, compliance), review of seizure diary, comorbidities, alcohol consumption and physical activities

Anthropometric data: weight, height, waist circumference and hip circumference and computed for body mass index and waist-hip ratio *international/standard and modified definition for Asians* and *International Diabetes Federation (IDF)*

Results

Fifty patients with mean age of 35 years were included. The mean frequency of seizure attacks per month was 4.9 (+ 17.2 SD). This study showed that the rate of combined overweight/obesity is common in patients with epilepsy based on computed BMI (46%) and WHR (48%) according to WHO criteria, same as with waist circumference (52%) according to IDF.

Table 1. Demographic Table

Variables	Mean	Standard Deviation	Min	Max
Age (years)	35.4	17.44	18	79
Weight (kg)	64.44	15.37	40	110
Height (m)	1.61	0.1	1.39	1.8
BMI	24.85	5.61	14.9	41.2
Waist Circumference	86.97	19.57	56	140
Hip Circumference	93.79	15.06	33	130
Waist-Hip Ratio	0.91	0.11	0.7	1.13
Average Seizure Attacks (per month)	4.9	17.19	-	121

The data suggest that gender, physical activity, presence of hypertension, diabetes or dyslipidemia are not significantly correlated with obesity in terms of BMI with a p-value of 0.6647, 0.6591, 0.8192, and 0.0573, respectively. There were no significant differences between the frequency of seizure attacks and WC, BMI or WHR. No significant differences were found between frequency of seizure attacks and physical activity, hypertension, diabetes and dyslipidemia (p-values of 0.2094, 0.1758, and 0.0916 respectively).

Table 1. BMI, Waist Circumference and Waist-Hip Ratio Results based on WHO and IDF criteria

	BMI		WAIST CIRCUMFERENCE	WAIST-HIP RATIO	
	WHO (std.) (%)	WHO (modified) (%)	IDF (%)	WHO (std.) (%)	WHO (modified) (%)
UNDERWEIGHT	6	6	-	-	-
NORMAL	48	34	48	52	20
OVERWEIGHT	32	14	-	-	-
OBESE	14	46	52	48	80

Conclusions

In conclusion, the present study showed that up to 60% of Filipinos with previously diagnosed epilepsy are overweight/obese. Gender, physical activity, presence of hypertension, diabetes or dyslipidemia is not correlated with obesity in terms of BMI, waist circumference and WHR. Although there is no significant difference between the frequency of seizure attacks in obese/ overweight individuals and normal-weight individuals, the odds ratio suggests that obese/overweight individuals are at greater risk of having at least one seizure per month than normal-weight individuals. Thus, a normal body mass index, waist circumference and waist-to-hip ratio can still be beneficial to some patients with epilepsy. In this regard, primary physicians, particularly neurologists, should always encourage their patient to be cautious in their weight.

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