The Nutritional Status of Outpatients at Queen Sirikit National Institute of Child Health

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Abstract

Objective : To study the nutritional status and prevalence of malnutrition in outpatients at Queen Sirikit National Institute of Child Health (QSNICH).

Material and Method : A cross-sectional study was done in outpatients at the Well-baby Clinic (WBC) and Outpatient Department (OPD), in May 1999. Patient sex, age, weight and length or height were recorded. Per cent weight for age (%W/A), per cent height for age (%H/A) and per cent weight for height (%W/H) were determined, using Thai standard growth data (1999).

Result : A total of 3,667 children were included in the study including 1,903 well children from the WBC and 1,764 sick-children from the OPD. The gender distribution was 49 per cent girls and 51 per cent boys. Their ages ranged from 10 days to 16 years. Nutritional status was classified as normal in 49.4 per cent, underweight in 19.8 per cent, wasting in 12.4 per cent, stunting in 12.8 per cent, overweight in 15.4 per cent and obesity in 10.4 per cent. The prevalence of normal, underweight and wasting status at the OPD were significantly higher; whereas, the prevalence of stunting, overweight and obesity status were significantly higher at WBC. There were no gender differences, except for a higher prevalence of stunting in males ($p < 0.05$).

Conclusion : Malnutrition is still a health problem in Thai children, both undernutrition and overnutrition. Good nutrition must be promoted to prevent malnutrition and early detection of malnutrition should be a major concern of health care personal with introduction of early intervention.

Key word : Malnutrition, Prevalence, Children

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Normal growth is a sign of good health. Ill children often grow slowly, so growth must be assessed in every child[1]. Malnutrition is still an important health problem, especially during childhood [2]. It affects growth, development, and immunity. Significantly malnutrition can result in growth disturbance[1-3]. Poor growth in childhood is a marker for failure to thrive and associated medical problems. [4,5] Malnourished children are very susceptible to infection and its complications, leading to high morbidity and mortality[2,3,6]. Malnourished children can have life time disabilities and can lack the capacity for learning that their well nourished peers have[7]. Growth assessment best defines the health and nutritional status of children. The most commonly used measurements are W/H, H/A, and W/A[6-9]. Growth monitoring is a component of child health surveillance programs worldwide[1,4,5]. Although Thailand is a food-exporting nation and has had a National Nutrition Plan to reduce the prevalence of malnutrition, some nutritional problems still persist[10]. The prevalence of malnutrition studied at the Children's Hospital, Well baby Clinic was studied in 1992 and demonstrated 7.7 per cent underweight, 10.3 per cent stunting and 4.8 per cent both underweight and stunting[11]. The present study was designed to reveal emerging trends in malnutrition at QSNICH.

Objective

To study the nutritional status and prevalence of malnutrition in outpatients at QSNICH.

MATERIAL AND METHOD

A cross-sectional study was done in two groups of outpatients at QSNICH in May 1999:

1. At the Well baby Clinic (WBC): well children presenting for routine vaccination (all cases were enrolled).

2. At the Outpatient Department (OPD): sick children presenting because of medical problems (only new cases were enrolled).

Data collection included sex, age, weight and length or height of these children. Incomplete data were excluded. The data were analyzed for the nutritional indices as %W/A, %H/A and %W/H, using the Thai standard growth reference (1999). Incomplete records were excluded from the study.

Classification of nutritional status was determined as follows[6,8,9,12-14],

Nutritional status	Classification	Nutritional indices	Criteria for severity of malnutrition		
			Mild	Moderate	Severe
Undernutrition	Underweight	%weight for age (%W/A)	75 - < 90	60 - < 75	< 60
	Wasted	%weight for height (%W/H)	80 - < 90	70 - < 80	< 70
	Stunted	%height for age (%H/A)	90 - ≤ 95	85 - < 90	< 85
Overnutrition	Obese	%weight for height (%W/H)	> 120 - 140	> 140 - 160	> 160
	Overweight	%weight for height (%W/H)		> 110 - 120	
Normal	Normal	All	%W/A > 90, %W/H > 90 - 110, %H/A > 95		

Table 1. Number of children, age and sexes.

Number	OPD	%	WBC	%	Total	%
Children	1,764	48.1	1,903	51.9	3,667	
Female	831		978		1,809	49.3
Male	933		925		1,858	50.7
Age range	9 days - 16 years		1 month - 15 years		9 days - 16 years	

Analysis

The nutritional status was determined in number and percentage. Statistical significance was tested using the Chi-square, and student *t*-tests. P-value less than 0.05 were considered to be significant.

RESULT

A total of 3,667 children were included in the study, 1,903 well children from the WBC and 1,764 sick children from the OPD (Table 1). There were 49 per cent girls and 51 per cent boys. Their ages ranged between 10 days and 16 years. The WBC and OPD groups had the same median age of 19 months. Nutritional status was classified as normal 49.4 per cent, underweight 19.8 per cent, wasting 12.4 per cent, stunting 12.8 per cent, overweight 15.4 per cent and obesity 10.4 per cent (Table 2). There were 647 children (17.6%) who had both abnormal weight and height. Most malnourished children were in mild degree of malnutrition, as shown in Table 2. The prevalence of malnutrition of moderate-severe degree was 5-8 times lower than the entire group.

Comparing between groups and sexes in Table 2, the prevalence of underweight and wasting were higher and the prevalence of stunting, overweight and obesity were significantly lower at the OPD than those at the WBC. There was no sex difference, except for the higher prevalence of stunting and moderate-severe obesity in males ($p < 0.05$). Children under 1 year of age made up 30 per cent of the total and the prevalence of underweight was 7.3 per cent at the WBC and 13.3 per cent at the OPD. The children were further divided into 3 sub-groups by age as follows: under 2 years, 2 - < 5 years and 5-16 years in Table 3. Overall there was an increased prevalence of malnutrition as children grew older, except for overweight status in both groups and obese status in the OPD group ($p < 0.01$).

DISCUSSION

Protein-energy malnutrition is generally considered the most important health problem in developing countries[12]. Half of the children in the present study had normal nutritional status. Poor growth in childhood is associated with medical problems[4, 5]. Undernourished children are often trapped in an infection-malnutrition cycle[3]. During frequent illnesses children always have a poor appetite, high metabolic rate and increased catabolism leading to malnutrition[1]. So the prevalence of underweight and wasting were higher in sick children. The prevalence

Table 2. Number of children, nutritional status and sexes.

Nutritional status	Total (3,667)	%	OPD (1,764)	%	WBC (1,903)	%	P-value	Female (1,809)	%	Male (1,858)	%	P-value
Normal	1,812	49.4	935	53.0	877	46.1	0.00	915	50.6	897	48.3	0.17
Underweight	726	19.8	433	24.5	293	15.4	0.00	336	18.6	390	21.0	0.07
Wasting	456	12.4	341	19.3	115	6.0	0.00	215	11.9	241	12.9	0.34
Stunting	470	12.8	185	10.5	285	15.0	0.00	211	11.7	259	13.9	0.04
Overweight	563	15.4	169	9.6	394	20.7	0.00	281	15.5	282	15.2	0.8
Obesity	381	10.4	119	6.8	262	13.8	0.00	196	10.8	185	10.0	0.41
Moderate-severe underweight	95	2.6	69	3.9	26	1.4	0.00	45	2.5	50	2.7	0.7
Moderate-severe wasting	55	1.5	43	2.4	12	1.7	0.00	30	1.7	25	1.3	0.52
Moderate-severe stunting	61	1.7	29	1.6	32	1.7	0.97	27	1.5	34	1.8	0.50
Moderate-severe obesity	73	2.0	30	1.7	43	2.3	0.27	27	1.5	46	2.5	0.04

Table 3. Number of children, nutritional status, and age groups.

Group	OPD (1,764)						WBC (1,903)						Total (3,667)					
Age in yr	< 2	%	2- < 5	%	5–16	%	< 2	%	2- < 5	%	5–16	%	< 2	%	2- < 5	%	5–16	%
Number	978	55.4	456	25.8	330	18.7	1,100	57.8	513	27	290	15.2	2,078	56.7	969	26.4	620	16.9
Normal	602	61.6	223	48.3	114	34.5	550	50	215	41.9	110	37.9	1,152	55.4	438	45.2	224	36.1
p-value			< 0.0001						0.0001						< 0.0001			
Underweight	165	16.9	136	29.8	132	40	130	11.8	97	18.9	66	22.8	295	14.2	233	24	198	31.9
p-value			< 0.0001						< 0.0001						< 0.0001			
Wasting	152	51	97	21.3	92	27.9	46	4.2	28	5.5	41	14.1	198	9.5	125	12.9	133	21.4
p-value			< 0.0001						< 0.0001						0.004			
Stunting	68	16.9	39	8.6	78	23.6	152	13.8	82	16	51	17.6	220	10.6	121	12.5	129	20.8
p-value			< 0.0001						0.21						0.001			
Overweight	107	10.9	34	7.5	28	8.5	256	23.3	100	19.5	38	13.1	363	17.5	134	13.8	66	10.6
p-value			0.08						0.0005						0.0005			
Obesity	43	14.4	41	9	35	10.6	122	11.1	84	16.4	56	19.3	165	7.9	125	8.7	91	14.7
p-value			< 0.0001						0.0002						< 0.0001			

of underweight in this hospital had increased compared to the studies in 1992, as follows: 7.7 per cent up to 11.8 per cent in children under 2 years, at the WBC[11], and 10.3 per cent up to 13.3 per cent in children under 1 year, at the OPD[15]. The prevalence of underweight in children under 5 years at the OPD was 21 per cent, lower than the prevalence in rural areas as follows: 25.6 per cent in Maha Sarakham Hospital[16], and 36.4 per cent in Kaosaming Hospital[17]. The prevalence of obesity in well children was 13.8 per cent, higher than the prevalence (8.8%) from the 2001 national survey[18]. The prevalence of obesity in urban areas was 1.6 times higher than from rural areas[18]. Many factors show a significant relationship to the nutritional status of the children including: family incomes, working time of the mothers, literacy of maternal education, birth weight, and age at first introduction of additional food[12]. Stunting reflects long-term effects of growth failure, so the prevalence in sick children with acute illness was not higher than in well children. The prevalence of stunting in well children was 15 per cent, which was 2 times higher than the prevalence of 7.1 per cent in Thai children (1-18 years), from the 2001 national survey.[18] The 2001 national survey revealed that prevalence of stunting in rural areas was 1.5 times higher than in urban areas[18]. Immigrants may explain this high prevalence of stunting in the present study. In a big city such as Bangkok, the number of people has increased by immigrants from rural areas. This high prevalence of stunting includes causes related to socioeconomic status, genetics, as well as cultural beliefs concerning child raising and chronic illnesses.[1,19] The extent of the height deficit in relation to age may be regarded as a measure of the duration of malnutrition or chronic malnutrition (stunting)[13,14]. Sick children suffering from chronic illnesses are short or stunted as a long-term consequence[1-5]. Comparing the sexes, there was no difference, except for the higher prevalence of stunting and moderate-severe obesity in males ($p < 0.05$). In previous studies, the prevalence of malnutrition was not different between the sexes[20]. But some studies reported a higher prevalence in females and males due to nutrition and health discrimination[12,21,22]. Malnutrition is still a common problem in children. Three factors should simultaneously be taken into account, quality, severity and duration[14]. The greatest preventive measures for combating child malnutrition, include good nutrition, immunization, and improved maternal and child health[7].

SUMMARY

Malnutrition is a common problem in children. Undernutrition is often found in sick-children and overnutrition is increasing. Good nutrition must be promoted to prevent malnutrition. Early detection of malnutrition should be a major concern of health care personnel to allow for early intervention.

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ภาวะโภชนาการของผู้ป่วยนอกที่มารับบริการที่สถาบันสุขภาพเด็กแห่งชาติมหาราชินี

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วัตถุประสงค์ : เพื่อศึกษาภาวะโภชนาการ และความชุกของภาวะทุโภชนาการของผู้ป่วยนอกที่มารับบริการที่สถาบันสุขภาพเด็กแห่งชาติมหาราชินี

วัสดุและวิธีการ : เป็นการศึกษาแบบตัดขวาง ในผู้ป่วยเด็กที่มารับบริการที่คลินิกเด็กดี และแผนกผู้ป่วยนอกของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี ในเวลาราชการของเดือนพฤษภาคม พ.ศ. 2542 รวบรวมข้อมูลเกี่ยวกับเพศ อายุ น้ำหนักและความยาวหรือส่วนสูง นำข้อมูลมาประเมินภาวะโภชนาการ โดยเปรียบเทียบกับเกณฑ์อ้างอิงการเจริญเติบโตของเด็กไทย พ.ศ. 2542 ของกองโภชนาการ กรมอนามัย กระทรวงสาธารณสุข

ผลการศึกษา : ผู้ป่วยเด็กจำนวน 3,667 ราย เป็นเด็กดีจำนวน 1,903 ราย และเด็กป่วย 1,764 ราย เป็นเพศหญิงร้อยละ 49 และเพศชายร้อยละ 51 อายุระหว่าง 9-16 ปี ภาวะโภชนาการจำแนกได้ดังนี้ คือ ปกติร้อยละ 49 ภาวะน้ำหนักตัวน้อยร้อยละ19.8 ภาวะเลี้ยงไม่โตร้อยละ12.4 ภาวะเติบโตช้าร้อยละ12.8 ภาวะน้ำหนักเกินร้อยละ15.4 และโรคอ้วนร้อยละ 10.4 เมื่อเปรียบเทียบระหว่างกลุ่มและเพศ พบว่ากลุ่มเด็กป่วยมีความชุกของภาวะโภชนาการปกติ ภาวะน้ำหนักตัวน้อยและเลี้ยงไม่โตสูงกว่า และมีภาวะเติบโตช้า น้ำหนักเกินและโรคอ้วนต่ำกว่าเด็กดีอย่างมีนัยสำคัญทางสถิติ ไม่มีความแตกต่างระหว่างเพศ ยกเว้นเพศชายพบภาวะเติบโตช้าสูงกว่าหญิงอย่างมีนัยสำคัญทางสถิติ ($p < 0.05$)

สรุป : ภาวะทุโภชนาการยังคงพบในเด็กไทยทั้งภาวะขาดอาหารและภาวะโภชนาการเกิน บุคลากรทางด้านสาธารณสุขควรสนับสนุนการมีโภชนาการที่ดี เพื่อป้องกันภาวะทุโภชนาการ และแก้ไขในระยะเริ่มแรก

คำสำคัญ : ภาวะทุโภชนาการ, ความชุก, ผู้ป่วยเด็ก

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