นิพนธ์ต้นฉบับ

การศึกษาระดับฮอร์โมนเพศชาย และอาการของชายสูงวัย ในชายสูงวัยที่มีภาวะเสื่อมสมรรถภาพทางเพศ

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บทคัดย่อ

วัตถุประสงค์ของการวิจัยนี้คือเพื่อทำการศึกษาความสัมพันธ์ของอายุ ระดับฮอร์โมนเพศชาย และอาการของชายสูงวัย ในชายไทยสูงวัยที่มีภาวะเสื่อมสมรรถภาพทางเพศ (Erectile Dysfunction) โดยศึกษาในชายไทยอายุตั้งแต่ 40 ปีขึ้นไป ที่มีอาการเสื่อมสมรรถภาพทางเพศ ที่มารับการตรวจรักษาที่คลินิกสุขภาพเพศชาย โรงพยาบาลจุฬาลงกรณ์ จำนวน 51 ราย โดยทำการซักประวัติข้อมูลส่วนบุคคล ตรวจร่างกาย ตอบแบบสอบถาม Aging Male Symptom (AMS) scale และเจาะเลือดหาระดับฮอร์โมนเพศชาย จากการศึกษาพบว่าชายไทยสูงวัยที่มีภาวะเสื่อมสมรรถภาพทางเพศจำนวน 51 ราย มีอายุเฉลี่ย 59.6 ปี และมีค่าเฉลี่ยของระดับ Total Serum Testosterone, Free Testosterone, Bioavialable Testosterone Level และ Sex Hormone Binding Globulin เท่ากับ 453.7 ng/dl, 8.7 ng/dl, 208.4 ng/dl และ 38 nmol ตามลำดับ โดยพบว่ามี 6 รายคิดเป็นร้อยละ 11.8 มีระดับ Total Testosterone ต่ำกว่า 300 ng/dl แต่พบว่าทุกรายมีระดับ Free Testosterone และ Bioavialable Testosterone ในระดับปกติ

กลุ่มตัวอย่างส่วนใหญ่มีอาการของชายสูงวัย (AMS Scale) ในระดับปานกลาง คิดเป็นร้อยละ 41.2 และพบว่า AMS Scale ไม่มีความสัมพันธ์กับระดับฮอร์โมนเพศชาย นอกจากนี้ยังพบว่าอายุมีความสัมพันธ์เฉพาะกับ Sex Hormone Binding Globulin อย่างมีนัยสำคัญทางสถิติ ($p<0.05$) แต่ไม่มีความสัมพันธ์กับ AMS Scale, Total Serum Testosterone, Free Testosterone และ Bioavialable Testosterone Level

สรุปคะแนน AMS Scale ไม่สัมพันธ์กับอายุ และระดับฮอร์โมนเพศชาย จึงไม่สามารถใช้ screening ภาวะฮอร์โมนเพศชายต่ำในชายสูงวัยที่มีภาวะเสื่อมสมรรถภาพทางเพศได้ ดังนั้นในผู้ป่วยชายที่มีภาวะเสื่อมสมรรถภาพทางเพศควรได้รับการตรวจ ฮอร์โมนเพศชาย เพื่อเป็นการประเมินผู้ป่วยที่อาจมีภาวะ Low Testosterone Level จะได้ให้การรักษาด้วย Testosterone Therapy ต่อไป และในรายที่อาการทาง Clinical มาก แต่ตรวจไม่พบภาวะ Low Testosterone Level อาจเป็นได้จาก Relative Androgen Deficiency ร่วมกับปัจจัยอื่นๆ

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The Study of Serum Testosterone Level and Aging Male Symptoms in Thai Aging Male with Erectile Dysfunction.

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Abstract

Purpose: To study the relationship between age, serum testosterone levels and aging male symptoms in Thai aging male with erectile dysfunction.

Materials and Methods: In all 51 men above the age of 40 years with erectile dysfunction, selected from andropause clinic outpatient department, King Chulalongkorn memorial hospital, with physical examination and completed questionnaire about personal detail, question, Aging male symptom scale (Thai version) and complete data on serum total testosterone, free testosterone, bioavialable testosterone, sex hormone-binding globulin level.

Results: Mean age of samples was 59.6 (SD = 9.4). Mean value of total, free testosterone bioavailable testosterone and sex hormone binding globulin (SHBG) was 453.7 ng/dl, 8.7 ng/dl, 208.4 ng/dl and 38 nmol respectively. Approximately 11.8% of subject had low total testosterone (total testosterone <300 ng/dl), but none subject had low free testosterone (free testosterone <5 ng/dl). The results of the AMS scores mostly suggested moderate symptoms (41.2%). AMS scale and three subgroup AMS domain scale was not significantly correlated with testosterone, free testosterone or bioavailable testosterone. Only age was significantly correlated with sex hormone binding globulin.

Conclusions: AMS scale was not correlated with age and serum testosterone level in Thai aging male with erectile dysfunction. Also, the fact that aging male symptoms questionnaires cannot predict androgen levels and does not exclude the possibility that relative androgen deficiency may contribute to the multifactorially defined clinical changes in aging men with erectile dysfunction.

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Introduction

As men get older, there is a decline in many biological systems; the endocrine systems share such changes in hormone levels. There are decreases in the secretion rate of testosterone[1]. Aging men is accompanied by a gradual decline in androgens that becomes more apparent after the age of 40 years and decreases progressively as men get age over than 70 years[2]. Symptoms of lower testosterone are used in conjunction with biochemical parameters to define androgen deficiency. Low testosterone levels were associated with symptoms such as: low libido, erectile dysfunction, osteoporosis/fracture, sleep disturbance and depression mood, lethargy, low physical performance[3-4].

The Aging Males' Symptom Scale (AMS) was developed to assess symptoms of aging (independent from those which are disease-related) between groups of males under different conditions, to evaluate the severity of symptoms over time, and to measure changes pre- and post androgen replacement therapy. It was developed in response to the lack of standardized scales to measure the severity of aging symptoms and their impact on HRQoL in males, specifically. The Aging Males' Symptoms (AMS) scale was originally developed in Germany in 1999 by Heinemann et al[5]. The scale was first translated into English (valid also for North America). Thereafter, the AMS was translated into various languages including Dutch, French, Flemish, Finnish, Indonesian, Italian, Japanese, Korean, Thai, Portuguese, Russian, Spanish, and Swedish.

Currently, there is little information is available in the literature on inter-relations between age-related decrease in hormone serum concentrations and symptoms in elderly males[6-8]. Although declining androgen levels and reduced sexual interest and activity appear to be related to the natural ageing process in men, there is little evidence of any clear association between androgen levels and erectile function[9-10].

The aim of our study is to determine the relationship between age, serum testosterone levels and aging male symptoms in Thai aging men with erectile dysfunction.

Materials and methods

Study participant

We study a cross-sectional of 51 men with erectile dysfunction, selected from andropause clinic outpatient department, King Chulalongkorn memorial hospital, above the age of 40 years. Mean age of subjects was 59 (range 41-82) years. All participants gave a written informed consent for participation in this study.

Measures

All patients underwent a complete and standardized physical, urologic examination. Urologic and general disease, medication, alcohol and nicotine consumption were also assessed in semi- structured interview.

Biochemical assessment

Blood sample were collected in the morning (between 8 and 11 am.). The biochemical studies performed included total testosterone, free testosterone, bioavialable testosterone and sex hormone-binding globulin (SHBG).

Questionnaires

Subject completed Aging male symptom scale (AMS scale) questionnaires. The AMS scale used the scoring points in each of 17 items to sum up the total scores. Breakdowns of the total scoring points were used for comparison with the other scales. Four grade of severity were distinguished: no/little complaints (≤26 points), Mild (27-36 points), Moderate (37-49 points) and Severe complaints (≥50 points).

Statistical analysis

Data was analyzed by SPSS (Statistical Pack-

age for the Social Sciences) for window (version 13) by parametric procedures (Pearson's correlation coefficients). The level of significant was set at $p<0.05$.

Result

1. Subject characteristics

Mean age of sample was 59.6 (SD 9.4). In this group, mean value of total testosterone was 453.7 ng/dl, free testosterone 8.7 ng/dl, bioavailable testosterone 208.4 ng/dl and sex hormone binding globulin (SHBG) 38 nmol/l respectively (Table 1). Approximately 11.8% of subject had low total testosterone (total testosterone <300 ng/dl), but none subject had low free testosterone (free testosterone <5 ng/dl).

Table 1 *Characteristics of cross-section study of 51 men with erectile dysfunction and sex hormone level*

	Mean	SD
Clinical		
Age (years)	59	9
Height (m)	168.1	6.2
Weight (kg)	68.8	6.0
BMI (kg/m^2)	24.3	3.1
Sex hormone level		
Total testosterone (ng/dl)	453.7	175.1
Free testosterone (ng/dl)	8.7	2.8
Bioavialable testosterone (ng/dl)	208.4	71.4
SHBG (nmol/l)	38	15.7

2. AMS scores

Mean AMS scale of sample was 42.0 (SD12.9). The results of the AMS scales were no / little symptoms 5.9%, mild symptoms 29.4%, moderate symptoms 41.2% and severe symptoms were reported in 23.5% of cases (Table 2, 3). Our results suggest that the men with erectile dysfunction have a higher perception of sexual symptoms than perception of psychological and somatovegetative symptoms according to the AMS scale.

Table 2 *Results of AMS scale in Thai aging male with erectile dysfunction*

AMS scale (Severity)	Number of sample
No /Little complaints (≤26 points)	3 (5.9%)
Mild (27-36 points)	15 (29.4%)
Moderate (37-49 points)	21 (41.2%)
Severe (≥50 points)	13 (23.5%)

Table 3 *Results of the three subgroup AMS domain in Thai aging male with erectile dysfunction*

AMS score	Mean	SD
Psychological factor (25 points)	11.0	5.0
Somatovegetative factor (35 points)	16.2	6.2
Sexual factor (25 points)	14.6	4.5

3. Correlation between AMS scores, sex hormone levels and age.

Our study shown AMS scale and three AMS domain scale none significantly correlated with testosterone, free testosterone, bioavailable testosterone, sex hormone binding globulin, and age. Although age significantly correlated with sex hormone binding globulin, but none correlated with AMS scale, total testosterone, free testosterone and bioavailable testosterone(Table 4, 5).

Discussion

The results of our study, we could not establish any relationship between AMS scale, age, androgen status as assessed by serum (total, free and bioavailable) testosterone and SHBG, as same as previous study that found AMS scale was unrelated both to testosterone level and age[10-13]. Sjoen et al, described a similar result in a study where in 161 men, age 74 -89 years described although the AMS questionnaire may help to differentiate and more

Table 4 *Relationships between AMS scores, sex hormone levels*

Correlation coefficient	Total testosterone	Free testosterone	Bioavialable testosterone	SHBG
AMS Psychological factor	-.162	-.159	-.166	.0.04
AMS Somatovegetative factor	-.183	-.133	-.148	-.024
AMS Sexual factor	-.061	-.062	-.102	.068
AMS score	-.117	-.172	-.195	.077

Table 5 *Relationships between AMS scores, sex hormone levels and age.*

Correlation coefficient	Age
AMS Psychological factor	-.126
AMS Somatovegetative factor	-.117
AMS Sexual factor	-.105
AMS Scale	-.125
Total testosterone	.139
Free testosterone	-.123
Bioavialable testosterone	-.138
SHBG	.368*

(* = p< .05)

systematically describe the patient's symptomatology, the importance of the information provided should not be overestimated in view of the lack of association with hormone levels. A major reason for the lack of predictive value of clinical symptoms may lie in the fact that signs and symptoms of aging in men are undoubtedly multifactorial in origin[14]. AMS scale was developed for health related quality of life scale (HRQoL) in aging men, it did not standardized as screening instrument for androgen deficientcy[15]. The characteristic of new composite screener to detect low testosterone level that used AMS data combined with age and body mass index seem to be better than the AMS values alone[16-17].

Aging is accompanied by a decrease in almost all physiological functions and as far as the endocrine system is concerned, by a decrease of not only of gonadal and adrenal androgen secretion but also of growth hormone secretion[18]. The decline in serum growth hormone release may contribute to manifestation of erectile dysfunction[19]. The physiologic importance of lower androgen levels in elderly men and their relationship to age-related decreases in sexual interest and function, muscle mass and strength, and bone mass and alterations in mood and sleep quality remain unclear. Previous study reported on 1,475 men ages of 30-79 years, with complete data on testosterone, sex hormone-binding globulin, and symptoms of androgen deficiency found low testosterone levels were associated with symptoms [low libido (12%), erectile dysfunction (16%), osteoporosis/fracture (1%), and two or more of the non-specific symptoms (20%)], but many men with low testosterone levels were asymptomatic[20]. The low serum of total and free testosterone levels are not related to the level of sexual desire in men with ED[21] and poor predictor of erectile dysfunction[22].

In our finding, approximately 11.8% of subject had low total testosterone (total testosterone <300 ng/dl), but none subject had low free testosterone (free testosterone <5 ng/dl), was in agreement with previous study that hypogonadism was uncommon finding in ED, and lack of association between serum testosterone levels, when present in mild to moderate low testosterone levels, and erectile function[23]. However screening in all men with ED is

necessary to identify cases of severe hypogonadism and some cases of mild to moderate hypogonadism, who may benefit from testosterone treatment.

We must emphasize that the present study specifically addresses the situation on an aging men with erectile dysfunction. This is of interest because there is little information available for such populations but the results may not be extrapolable to normal aging populations.

Conclusion

The result of our study for the AMS scale suggest that in Thai aging males with erectile dysfunction the perception of aging male symptoms (AMS scale) does not correlated with age and serum testosterone level. Also, the fact that aging male symptoms questionnaires cannot predict androgen levels certainly does not exclude the possibility that relative androgen deficiency may contribute to the multifactorially defined clinical changes in aging men with erectile dysfunction.

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