Global Journal of Medical Research: I
Surgeries and Cardiovascular System
Volume 15 Issue 1 Version 1.0 Year 2015
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Association between Socieoeconomic Variables (SEV) and Benign Prostatic Hyperplasia (BPH) among Sudanese Patients

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Patients and methods: A hospital based prospective study comprised 209 patients (aged 36-90 years, mean age for 9.5 years) surgically treated for BPH within one year of its diagnosis (cases). All cases were from rural area. We classified men with clinical BPH at the follow-up if they reported (1) frequent or difficulty urinating and were told by a health professional that they had an enlarged or swollen prostate or (2) if they reported having surgery for BPH. Each participant completed a standardized questionnaire, including socioeconomic status, use of cigarettes, alcohol and coffee consumption. The questionnaire also elicited detailed information on the medical history of prostatic and (over the past month) lowers urinary tract symptoms, applying all questions from the American Urology Association instrument.

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GJMR-I Classification: *NLMC Code: WI 100*

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Results: The prevalence of surgery for BPH increased with age from 45.3% at ≤65 years to 54.7% at ≤90 years. There was an inverse association between alcohol intake and men treated surgically for BPH or in 'watchful waiting' for surgical intervention, but a positive correlation with coffee consumption, and although not significantly, with the number of cigarettes smoked and snuff.

There is also strong association between coffee consumption and IPSS among study subjects (P> 0.05). Although, IPSS was moderate for most of the study subjects, men who had spent most of their lives in a rural rather than an urban environment appeared to be at increased risk.

Conclusion: Given the opposite effect of Coffee in increased risk of clinical BPH, generally, the lifestyle factors assessed here have no major effect on the aetiology of BPH.

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I. Introduction

Benign prostatic hyperplasia (BPH) is one of the more common conditions among aging men, making BPH a leading source of healthcare expenditure in the United States (1-2). Unfortunately, the pathophysiology of PBH and the progression to lower urinary tract symptoms (LUTS) remain poorly understood (3). The diagnosis of BPH relies almost entirely on patient reporting and complaints of incomplete emptying, urgency, discomfort, or hesitancy. As such, the diagnosis of BPH has highly subjective component compared to other common age-related chronic conditions, hence more susceptible to various forms or reporting bias possibly rooted in sociocultural differences in symptom perception or the willingness of patients to report and discuss urinary symptoms (4). BPH in association with some lifestyle factors; sexual activity seems to have no effect, but studies of behavioural factors on PBH have produced conflicting results for the effect of cigarette smoking, alcohol consumption and coffee intake (5). Since, the importance of these factors remains to be elucidated; the present study was conducted to evaluate several lifestyle factors and their association with BPH.

II. Materials and Methods

From March 2010 to March 2012, 209 with BPH who: (i) were surgically treated for this disease within two years of its diagnosis ('incident' cases); (ii) had histological evidence of coexisting prostate cancer; and (iii) were residents of Gezira area, were identified in Gezira Hospital for Renal Diseases and Surgery (GHRDS). Cases were interviewed in the hospital wards, before discharge by either one or two trained interviewers, which based on structural questionnaire.

The total BPH 'prostate symptom score' (PSS) was obtained from the seven questions (score 0–5) giving a possible range of 0–35; the questions are; sensation of incomplete bladder emptying, having to urinate again after less than 2 h, stopping and starting several times during urination, difficulty in postponing urination, weak urinary stream, having to push or strain to begin urination, and nocturnal frequency of getting up to urinate. We classified men with clinical BPH at follow-up if they reported (1) frequent or difficulty urinating and were told by a health professional that they had an enlarged or swollen prostate or (2) if they reported having surgery for BPH. The data was assessed using the logistic regression analysis of the SPSS.

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Socioeconomic status was introduced as ordered variables. In all analyses statistical significance was indicated by a two-tailed P< 0.05.

III. Results

Two hundred and nine patients (aged 36-90 years, mean age for 9.5 years), according to age category 45.3% at≤65 years to 54.7% at ≤90 years. The frequency of PBH increased over age of 60 years reaching the top at age between 56-75 years indicating that the prevalence of severe clinical BPH also increased significantly with age (Table 1). Table 1 also shows the basic demographic characteristics among study subjects, more than half the study cases (54.5%) are lived in the rural area and are descending from Arab origin. Almost all of the study subjects are married and the majority were practice sex in the age between 20 to 30 years. Table 2 shows the frequency distribution of cases for selected personal characteristics and habits. The data reported an inverse association between alcohol intake and men treated surgically for BPH or in 'watchful waiting' for surgical intervention, but a positive correlation with coffee consumption, indicating that the risk of BPH increased significantly as more coffee was consumed, however no supports for the hypothesis that consumption of alcohol increased the risk for BPH. There is also strong association between coffee consumption and IPSS among study subjects (P> 0.05), although, IPSS was moderate for most of the study subjects (Table 2).

Table 1 : Distribution (characteristics and distribution) of 209 patients with BPH at baseline

Characteristics	Frequency	Percentage
Age (years)		
36-45	3	3.3
46-55	20	9.5
56-65	68	32.5
66-75	87	41.8
76-85	15	11.9
86+	2	1.0
Education		
• None	27	17.6
• less than bachelors degree	113	73.9
• Bachelors and advanced degree	13	8.5
Marital status		
• Not married	3	1.4
• Married:	206	98.6
• Unigamy	130	63.1
• Polygamy	76	36.9
First sexual practice (years)		
<20	53	25.4
20-30	134	64.1
30	22	10.5
Residence		
• Rural	114	54.5
• Urban	94	45.0
• Displaced	1	0.5
Cigarette smoking		
• Never smoke	142	67.9
• Current smoke	67	32.1
Alcohol intake		
• Yes	56	26.8
• No	153	73.2
Coffee consumption		
• Never or rare	65	31.1
• 1-4 cups per day	130	62.2
• >5 cups per day	14	6.7
Snuff intake		
• Yes	81	38.8
• No	128	61.2

Table 2 : Frequencies and prevalence of some beverages, smoking, snuff and spouse by IPSS score among BPH patients

Characteristics		IPSS			Sig.
		0-7	8-19	20-35	
IPSS	Frequency	19	98	92	
	Percent	9.1	46.9	44.0	
Alcohol	Yes	4	33	30	.650
	No	15	65	62	
Smoking	Yes	4	33	30	.552
	No	15	65	62	
Coffee	Yes	8	67	69	0.01*
	No	11	31	23	
Snuff	Yes	9	36	36	.681
	No	10	62	56	
Spouses	Unigamy	10	62	58	.665
	Polygamy	9	36	31	

*$p<0.01$

IV. Discussion

As is widely accepted practice, this epidemiological study was based on Sudanese men with BPH who had surgery or were candidates for surgical intervention. Surgery is considered more effective than 'watchful waiting' with or without lifelong medical therapy. Some men who consider their symptoms annoying may desire treatment, whereas others choose watchful waiting. Unlike prostate size, which has no correlation with the degree of BPH, the score obtained from the PSS is a reliable indicator of symptoms. Using the IPSS the physician can determine whether the patient's prostatism is mild, moderate or severe, and to what extent it improves during or after any treatment. The subjective IPSS and the objective urodynamic evaluation do not always agree, and then only approximately. The progression of pathological (histologically identifiable) BPH to clinical BPH is important, necessitating therapeutic intervention. Urologists differ considerably in their choice of indications for and the timing of prostatectomy; thus the rate of prostatectomy varies with professional education and among different areas or countries. The risk of a 50-year-old man undergoing a prostatectomy in his lifetime may be up to 40%; by 80 years 85% of men has histologically identifiable BPH. BPH does not occur in men who were castrated before puberty and is rare in men who were castrated before 40 years old (6). Oestrogens and androgens act synergistically, but the excess risk associated with oestrogen level is confined to men with relatively low androgen levels (7). The intake of alcohol and caffeine based beverages, cigarette smoking, obesity and other factors affecting the endogenous sex hormones might be related to the risk of developing BPH. In the present age-stratified cohort study of men aged 36–90 years, neither the snuff nor cigarette smoking was essential risk factors for BPH, but coffee consumption apparently influenced the development of clinical BPH; the relative risk decreased with alcohol and increased with coffee consumption.

The intake of high levels of alcohol reduces plasma testosterone concentration, with decreased production and increased metabolism (8); thus the alcohol intake influences the androgen balance. Several epidemiological studies report an inverse relationship of alcohol with BPH. In the present study men lived in the rural rather than an urban environment appeared to be at increased risk of BPH. This data was in contrast to other study indicated that men lived who spend most of their lives in an urban environment before setting to rural area are at greater risk for BPH (9). Further epidemiological studies should evaluate whether filtered coffee consumption or avoiding coffee reduces the risk of BPH or progression to surgery. Whether the constituents of coffee produce their effect on BPH through hormonal changes, abnormal lipid metabolism or other mechanisms remain to be determined. In summary, the study examined the cause-and-effect relationships between socioeconomic factors and clinical BPH. Despite the effect of coffee consumption to BPH, the understanding the factors with prospective effects or increasing the risk of developing BPH remains limited as long as the cause are uncertain.

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