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Research Article

Awareness on risk factors for Diabetic mellitus and Diabetic peripheral Neuropathy among the Nationalities of Egypt and Saudi Arabia

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Abstract:

AIMS OF THE STUDY: This study attempted to compare the awareness on risk factors for diabetes and Knowledge on diabetic peripheral neuropathy among the nationalities of Egypt and Kingdom of Saudi Arabia.

Methodology: A descriptive Comparative design was adopted The purposive sampling technique was used to select the both male and female patients with type 1 & type 2 DM attending diabetic out patients department.

Results : Saudi nationalities have a higher correct answer saying primary cause of peripheral neuropathy is high blood glucose over long period (63.3 % (p = 0.006), The percentage knowledge score of diabetic patients on peripheral Neuropathy among the nationalities of Saudi(80%) have moderate level of knowledge on peripheral neuropathy. Whereas only 55 % of subjects of Egypt have moderate knowledge score on peripheral neuropathy

Conclusion : Lack of awareness about Diabetes mellitus and peripheral neuropathy and foot examination is existing among the people with diabetes mellitus of both nationalities.

INTRODUCTION :

Diabetes Mellitus is a life threatening diseases condition and worldwide 3.2 million deaths are attributed to diabetes every year. The most recent data from the WHO show, the number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030. (1, 2). The World Health Organization(**WHO 2010**) has identified diabetes as a pandemic disease of 21ST century(**Shaw JE et al 2010)**.The negative effect of diabetes are either directly related to the disease itself or through its associated complications (**Azidah A.K., Hasniza H., Lili Husniati Y , 2014)** Predictors for the potential development of diabetes mellitus are over-weight (body mass index [BMI] above 27 kg/m^2), first degree relatives with diabetes, arterial hypertension (blood pressure above 140/90 mm Hg), dys lipidaemia (HDL be-low 35 mg/dl or triglyceride above 250 mg/dl), impaired fasting glucose or impaired glucose tolerance. The diabetic peripheral neuropathy is a nerve disorders that affect people with high blood glucose levels(**Mørkrid K[1], Ali L, Hussain A 2010)** The prevalence of DNP is associated with high blood pressure, hyper lipidemia and smoking. The duration of diabetes mellitus, age of the patient, family history of DM are also considered the risk factor for diabetic peripheral neuropathy.**(Khalid A. Alqurashi 2011)**

Consistently keeping blood sugar with in a target range can help prevent or delay the progression of diabetic peripheral neuropathy.(**Rafal Filip etal 2014).** Lack of knowledge about Diabetic Peripheral neuropathy increases the prevalence of peripheral neuropathy**.(Abdullah S. Aljoudi2009)**. DNP may be silent and go undetected and it is liable to develop complications result in amputation. **(Sun PC, Jao SH etal ,2009)**Early screening and prevention is better. A great deal depends on the patients knowledge, to take appropriate action when complications are likely to occur.

The majority of patients with diabetes mellitus do not take prescribed treatment, neglecting the dos and don'ts of and do not know the importance of exercise and foot care which . leads to complications such as diabetic peripheral neuropathy.(**Kamesh Meet etal)** Diabetic neuropathy patients should get an adequate education about their condition especially the importance of tight blood sugar levels control. It's really important that once a patient has been diagnosed with diabetes, they should at all time achieve normal blood sugar levels. **(Faraja S. Chiwanga 2015)** The investigators felt the need to compare the awareness on risk factors for diabetes and diabetic peripheral neuropathy among the people with diabetes mellitus of both Egypt and Saudi Arabia nationalities.

AIMS OF THE STUDY: To compare the awareness on risk factors for diabetes and Knowledge on diabetic peripheral neuropathy among the nationalities of Egypt and Kingdom of Saudi Arabia.

Key Words: A).Awareness : It refers to the right response scores obtained by type 1 and type 2 diabetic patients to the structured knowledge questionnaire on diabetes mellitus and diabetic peripheral neuropathy . B).Risk Factors: 1).It refers

to the data's of bio socio –demographic status such as age, sex, marital status, level of education occupation, income of the family, habits of smoking, dietary habit and physical exercise, which includes the Medical data's such as duration of diabetes mellitus, age of onset of DM, family history of DM, blood sugar level, presence of hypertension, heart diseases and body mass index. C). Diabetic Peripheral Neuropathy: It is a complication of high blood sugar and it damages nerves in legs and hands, characterized by numbness, weakness, severe pain in the hands and feet, reduced ability to feel pain and temperature changes. **Research question :** Is the diabetic patients need to improve their knowledge in prevention of developing diabetic peripheral Neuropathy.

Methodology: A descriptive Comparative design was adopted to correlate the awareness on risk factors in the development of Diabetic peripheral Neuropathy among the citizens of Egypt and Saudi Arabia . The two Research Variables identified are Knowledge on DM & Diabetic peripheral Neuropathy . and Risk factors associated with Diabetic peripheral Neuropathy **.** The purposive sampling technique was used to select the both male and female patients with type 1 & type 2 DM attending diabetic out patients department ,who have high blood glucose with complaints of pain in hands and feet between 40-70 years of age. Patients with Stroke, Vascular diseases and Neurological deficits, Dermatological problems such as cellulites, lesions, ulcers and injuries/ surgeries to the lower limbs were not included **.Data collection : Tool: Section A:** Includes of bio socio –demographic status such as age ,sex, marital status, level of education, occupation, income of the family, Physical exercise, habit of smoking and dietary habit. It also includes the Medical data's such as duration of diabetes mellitus, age of onset of DM, family history of DM, blood glucose level, presence of hypertension, history of heart diseases and body mass index. **Section B:** It consists of 20 questions to assess the knowledge on Diabetes Mellitus and 18 questions to assess the level of knowledge on diabetic peripheral Neuropathy. Reliability was done by test- retest method. The tool has been translated from English to Arabic. The study participants were informed that their participation is purely on willingness only and have the right to withdraw from the study at any time. The study was conducted in the Diabetic Out Patient Clinic, at Al Haiet General Hospital, HAIL, Kingdom of Saudi Arabia and Zagazig University Hospitals, Egypt. The sample consisted of 120 patients who are diagnosed to have diabetes mellitus and on treatment attending diabetic clinic, 60 patient from Alhaiet general Hospital, HAIL, K.S.A and 60 patients from Zagazig University Hospitals, Egypt were available during the period of data collection and who fulfilled the inclusion criteria. Required data was collected by interview technique using the tool, it took an average of 20-30 minutes and got good co-operation from OPD nurse.

RESULTS :

Table 1 : Shows the Comparisons of socio demographic characteristics among the Nationalities of Egypt and Saudi Arabia showed the exception of age and Marital status(p= 0.261) , there have been statistically significant differences between these two nationalities in all the studied socio demographic variables.

Table : 1 Comparison between the two studied groups according to demographic data

Demographic data	Nationalities of Egypt (n=60)		Nationalities of Saudi Arabia (n=60)		c^2	p
	No.	%	No.	%		
Sex						
Male	18	30.0	29	48.3	4.232*	0.040*
Female	42	70.0	31	51.7		
Age						
40-50	26	43.3	26	43.3	0.059	0.971
51-60	18	30.0	17	28.3		
61-80	16	26.7	17	28.3		
Marital status						
Married	43	71.7	34	56.7	3.505	MCp=0.291
Single	4	6.7	6	10.0		
Widow/Widower	13	21.7	19	31.7		
Separated/Divorced	0	0.0	1	1.7		
Education						
Illiterate	32	53.3	14	23.3	25.134*	<0.001*
Primary	18	30.0	13	21.7		
Secondary	5	8.3	19	31.7		
University	3	5.0	14	23.3		
Postgraduate	2	3.3	0	0.0		

Income per month (SR)						
Low	7	11.7	18	30.0		
Moderate	43	71.7	33	55.0	6.208*	0.045*
High	10	16.7	9	15.0		
Occupation						
Unemployed	39	65.0	23	38.3		
Technical	4	6.7	10	16.7	8.973*	0.011*
Employed	17	28.3	27	45.0		
Habit of Smoking						
Yes	5	8.3	20	33.3	11.368*	0.001*
No	55	91.7	40	66.7		

χ^2, p: χ^2 and p values for Chi square test for comparing between the two groups

MC: Monte Carlo for Chi square test for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

Table 2 shows the comparison between two nationalities and medical information showed that 80 % (p= <0.001)of Saudi nationality have a family history of diabetes and 68. 3% (p= <0.001) have high level of cholesterol and this percentage is significantly higher than nationalities of Egypt. Whereas 88.3 % (p= <0.001)of nationalities of Egypt have no history of heart disease and this percentage is significantly higher than the nationalities of Saudi.

Table 2 **Comparison between the two studied groups according to medical information's**

	Group I (n=60)		**Group II (n=60)**		**Test of Sig.**	**p**
	No.	**%**	**No.**	**%**		
Duration of Diabetes						
Less than 5 years	25	41.7	23	38.3		
5-10 years	15	25.0	22	36.7	c^2= 2.122	0.346
More than 10 years	20	33.3	15	25.0		
Age of onset of Diabetes						
Below 40 years	27	45.0	21	35.0		
41-50 years	24	40.0	31	51.7	c^2= 1.700	0.427
Above 60 years	9	15.0	8	13.3		
Family history of Diabetes						
Yes	29	48.3	48	80.0	c^2= 13.084*	<0.001*
No	31	51.7	12	20.0		
History of hypertension						
Yes	32	53.3	38	63.3	c^2= 1.234	0.267
No	28	46.7	22	36.7		
Blood Pressure						
Normal	12	20.0	14	23.3	c^2= 0.196	0.658
Hypertensive	48	80.0	46	76.7		
History of Heart Disease						
Yes	7	11.7	31	51.7	c^2= 22.182*	<0.001*
No	53	88.3	29	48.3		
Body Mass Index						
Low weight	10	16.7	13	21.7		
Normal	11	18.3	3	5.0	c^2= 5.264	0.072
Obese	39	65.0	44	73.3		
Blood Cholesterol value within three months						
Normal	36	60.0	15	25.0		
High	18	30.0	41	68.3	c^2= 18.013*	<0.001*
Low	6	10.0	4	6.7		
Advice received on self-care						
Yes	33	55.0	42	70.0	c^2= 2.880	0.090
No	27	45.0	18	30.0		

χ^2, p: χ^2 and p values for Chi square test for comparing between the two groups

MC: Monte Carlo for Chi square test for comparing between the two groups

t, p: t and p values for Student t-test for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

Table 3: The comparison between two nationalities in regard to knowledge score 80 % (^{MC} p= 0.002) of nationalities of Saudi have a moderate knowledge about peripheral neuropathy and this percentage is significantly higher than the nationality of Egypt. Regard to knowledge on diabetes mellitus was low (< 33.3 % score) in both nationalities .

Table (3): Comparison between the two studied groups according to knowledge score levels

Knowledge score	Nationalities of Egypt (n=60)		Nationalities of Saudi (n=60)		c^2	p
	No.	%	No.	%		
On diabetes						
<33.3% low	57	95.0	59	98.3		
33.3 - 66.6% moderate	3	5.0	1	1.7	1.034	^{MC}p= 0.619
≥66.6 high	0	0.0	0	0.0		
Peripheral neuropathy						
<33.3% low	21	35.0	12	50.0		
33.3 - 66.6% moderate	33	55.0	48	80.0	11.261*	^{MC}p= 0.002*
≥66.6 high	6	10.0	0	0.0		
Overall knowledge						
<33.3% low	55	91.7	57	95.0		
33.3 - 66.6% moderate	5	8.3	3	5.0	0.536	^{FE}p= 0.717
≥66.6 high	0	0.0	0	0.0		

χ^2, p: χ^2 and p values for Chi square test for comparing between the two groups

MC: Monte Carlo for Chi square test for comparing between the two groups

FE: Fisher Exact for Chi square test for comparing between the two groups

*: Statistically significant at $p \leq 0.05$

63.3 % (p = 0.006) of Saudi nationalities have a higher correct answer saying primary cause of peripheral neuropathy is high blood glucose over long period and also 70 % (p= 0.002) of Saudi nationality have a higher correct answer saying peripheral neuropathy affects first on legs and foot. peripheral neuropathy pain in the lower leg is reduced by pain relieving drugs is a significant difference between nationalities of Egypt and Saudi . The nationality of Saudi have higher knowledge and the percentage was 91.7 % (p= < 0.001), peripheral neuropathy increases the risk of amputation is a significant difference between the nationalities of Egypt and Saudi . The nationality of Saudi have higher correct answer than the nationalities of Egypt and the percentage was 58. 3 % (p= 0.017) .There was no significant difference between both nationalities to the other items of peripheral neuropathy scale .

Discussion :

Patients were interviewed and responses were recorded on a structured questionnaire. Patient's level of awareness was assessed by asking questions on symptoms , complications of diabetes and diabetic peripheral neuropathy and knowledge level of self-care was assessed by asking about the following practices carried at home.

The outcome of this study contributes the existence of factors commonly increasing the risk of diabetes and development of diabetic peripheral neuropathy. Most of the subjects (43.3 %) are in the age group of 40-50 years , most of them were (53.3 % , 63.3 %) having history of hypertension and were hypertensive in both nationalities. The above findings are

consistent with, a cross sectional study conducted to determine the prevalence of diabetic peripheral neuropathy in type 2 diabetic out patients in the King Abdulaziz Specialist Hospital, Saudi Arabia by Khaled Abdullah Alswat et al (2015)

Majority of the subjects (95 %) of nationalities of Egypt and 98 .3% of Saudi nationalities have low knowledge on diabetes mellitus(< 33.3 %).91.7 % of the Saudi nationalities reported incorrectly that the pain in the lower leg is reduced by use of pain relieving drug.

The percentage knowledge score of diabetic patients on peripheral Neuropathy among the nationalities of Saudi(80%) have moderate level of knowledge on peripheral neuropathy. Whereas only 55 % of subjects of Egypt have moderate knowledge score on peripheral neuropathy.

CONCLUSION:

The study concluded that the patient of both nationality had poor level of knowledge about diabetes Mellitus and diabetic peripheral neuropathy . Health is the quality of life that enables the individual to live the most and serve the best. Nursing personnel, as members of the healthcare team, have an important role to play in improving the general health, wellbeing and quality of life of diabetic clients by Educating them the importance of diet, exercise, daily foot inspection and foot care and regular follow up.

Ethical Clearance : Taken from Director of Al Haiet General Hospital, HAIL and Kingdom of Saudi Arabia and Zagazig University Hospitals, Egypt.

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Conflict of Interest : Nil

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