REVIEW ON THE PREVALENCE OF DIABETES MELLITUS SINDH PROVINCE OF PAKISTAN.

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Abstract

DM is a metabolic condition distinguished by high blood sugar owed by shortage or lack of insulin. Lack of insulin influence on the metabolism of carbohydrate, protein and fat, and causes a significant interruption of water and electrolyte balance. International Diabetes Foundation (IDF) reported 366 million people were affected worldwide as of diabetes in 2011, 371 million peoples were suffering by diabetes in 2012. During 2014, 6.9 million diabetic patients were reported from Pakistan by IDF between the age group of 20-79 years old, the occurrence was 6.8% in adults. IDF estimates the prevalence of 12.8 million diabetics by 2035, Considerable work also done in Sindh Province. During 1995 Shera et al., made a survey on the occurrence of DM in the rural regions of district Shikarpur of Sindh Province. 16.2% males and 11.7% females were suffering from DM (Mahar et al., 2010) reported the prevalence diabetes type 2 in the rural populace of Gaddap town, Karachi Pakistan. The prevalence was 8.73%, with 1258 (6.55% previously and newly reported 2.18%) (Bukhari et al., 2016) made survey on Diabetes Mellitus and reported a total of 11.20% of population were suffering from DM among them 9.19% were reported for women and 16.2% of man suffering from DM. (Parveen et al., 2017) survey on the diabetes in Hyderabad district of Sindh Pakistan. They randomly select 240 samples from Hyderabad out of which 142 males and 98 females, the total prevalence was 59% male and 41% of females.

Introduction:-

Diabetes mellitus (DM) is a metabolic diseases differentiate by abnormally high blood sugar due to shortage or absence or of insulin. Deficiency of insulin disturb the metabolism of carbohydrate, protein and fat, and causes a major disturbance of water and electrolyte balance. (Edwards et al., 1991).

Diabetes mellitus (DM) categories in to 1 and 2 symptoms are analogous in a diabetes disorder but varying in concentration including weight loss, polydipsia, polyurea, polyphagia, cramps, fatigue, constipation and indistinct vision (Kumar, 2002). Incident (type 1 DM) patient are at the risk of micro vascular complexities, macro vascular
diabetes, such as blockage of arteries, heart diseases and peripheral vascular illness (Shukla, 2003 and Saely, 2004).

Some diseases like obesity, visceral adiposity, and increasing age, are can also cause Diabetes associated with sleep-disordered breathing (SDB). Research reveals that diabetes enhance the chances of cardiovascular disease outcomes, including high blood pressure and myocardial infarction (Grunstein et al., 1995; Cowie and Harris, 1995: Nieto et al., 2000).

DM type 2 enhance the chances of cardiovascular diseases which leads to word to premature illness and death worldwide (Jabir,2006). It is origin for retinopathy, neuropathy and nephropathy DAP shows chronic complications affecting peoples retinopathies affected 43% of people, nephropathy affected 20%, WHO Diabetes. [online] 2009 [cited 2010 July 19 or glycemic control results in diabetic foot ulcer and elimination eventually leading toward addiction. depression, and gigantic healthcare costs for almost every society (Vileikyte, 2005).

The prevalence of diabetes mellitus increasing day by day due to increased in rapidly increase in populace, ageing, social process and related lifestyle modification (Zimmet et al., 2011)

The recent report of International Diabetes Foundation (IDF) at worldwide 366 million people were suffered by diabetes at globally during 2011. 371 million population were diabetes in 2012; India (63 million), China (92.3 million), (24.1 million) were recorded in United kingdom and 4.8 million people were die due to diabetes, diabetic peoples were survive in short and intermediate profits in Pakistan from 4 out of 5 (IDF 2012).

Pakistan is the 6th densely populated country of the world with a populace of 184.35 million (Mazhar 2015). According to the DAP Diabetic Association of Pakistan and World Health Organization (WHO) the total prevalence of diabetes as 11.47% (extend from 6.39–16.5%) (Shera et al., 1995 and Nishtar and Shera 2006). International Diabetic Federation (IDF) reported 6.9 million diabetic patients were in Pakistan during 2014 with the age 20-79 years old, the occurrence was 6.8% 7 in adults. IDF estimates the prevalence may rise up to 12.8 million diabetics by 2035, an alarming situation, and Pakistan will be on the 8th position among the world’s top 10 countries having higher incidence of Diabetes (IDF 2013) awhich means increased morbidity due to its snap. According to another study, mortality associated with diabetes alone will increase by 51% over the next 10 years (Basit and Williams, 2006)

Discussion:-
Diabetes mellitus (DM) is an everlasting metabolic disorder that enhance socioeconomic problem in developing world. In the past few decades there has been a considerable increase in the occurrence of this distressing diseases and is existing as a upsetting problem The current survey of Diabetes Foundation (IDF) at worldwide 366 millions population were affected at globally from diabetes in (2011). In 2015, The International Diabetes Federation (IDF) has reported that there is more than 35.4 million diabetic patient in the North and Middle East African areas, out of which more than 7 million case was reported from Pakistan alone with occurrence rate of 6.9% among adults aged from 20-79 years in Pakistan (Diabetes In Pakistan 2015), (Din., 2014). In fact Pakistan unfortunately happed to be the 7th in the world in term of prevalence of diabetes and the 133rd in term of health care system due to many reasons and factors, and type-II diabetes represented the vast majority of patients (Ansari, et. al., 2015), (Hussain, 2016). It has been anticipated that by 2040 DM will become globally so pandemic that every 10 persons 1 at least will be diabetic, and some studies expected that by 2030 there will be more than 14 million patient of DM in Pakistan (Ansari, et. al, 2014 and Hussain 2016).

In various provinces of Pakistan considerable work had been done on the different aspects diabetes mellitus. Including (Shera et al., 1995; Shera et al., 1999; 1995; 2007; 2010; Basit et al., 2002; Jafar et al., 2004; Rifat-uz-Zaman et al., 2009; Mahar et al., 2010; Zafar et al., 2011. Din., 2014; Ansari et al., 2015; 2016; Hussain, 2016) to give advance knowledge about the prevalence DM Type 2 in the different provinces of Pakistan. (Shera et al., 1999) explore the prevalence of diabetes mellitus type 2 in the various regions of Baluchistan. Scholars examine 1404 males and females of rural and urban inhabitant. The total prevalence was 13.46% in which 14.71% males were suffering from diabetes and 12.89% of females having diabetes. (Basit et al., 2000) reported the prevalence of DM from Lasbella district of Balouchistan they examined total of 2032 (670 males and 1362 females. The prevalence of diabetes were diagnosed by means of the ADA American Diabetic Association FBG criteria. They discover the total occurrence of DM of the past and newly detected diabetes mellitus was 7.2 %, though, the occurrence in male was
11.9% in female was 4.9% (Shera et al., 2010) made a assessment on the prevalence of DM and IGT Impaired Glucose Tolerance in Punjab provinces of Pakistan. OGTT were performed of 1852 victims having age group 25 years and above. There were 12.14% of males victims and 9.83% of females victims were suffering from diabetes. The average prevalence of DM was 10.98%. (Zafar et al., 2011) make a study to examine the prevalence of DM in the urban resident of Rawalpindi, Punjab, Pakistan. They examine 1091 subjects there were 293 males and 798 females among them 15.41% males and 12.31% females were found diabetic with the whole percentage was 13.14%. (Husnain and Shaikh., 2009) reported 29.3% cases of Diabetes from Lahore.

(Sohail, Rashid and Ahmad 2011) Described the occurrences of Diabetes mellitus of Rawalpindi, diagnose the prevalence of (DM). Cross Sectional investigation, from Nov 1995 to Jul 1996 (938) victims were randomly collected from Rawalpindi at the Armed Forces Institute of Pathology, Department of Chemical Pathology and Endocrinology, between these 532 females and 406 were male victims among them 66 (12.4%) female have confirmed diabetics and from 406 males 36 (8.87%) having diabetic. (Shera et al., 1999) also worked on diabetes mellitus in KPK (Khyber Pakhtukhwa) previously known NWFP (North West Frontier Province). In this region researchers examined 1035 victims having age group 25 years and greater. OGTT were performed and the diabetes diagnosis was made as per WHO criteria. The Total prevalence of type 2 diabetes was 11.1% in which 9.2% was males and 11.6% was females.

Considerable work also done in Sindh Province by (Shera et al., 1995) made an examination on the prevalence of DM in the rural areas of District Shikarpur, Sindh Pakistan. They examined 967 victims among them 387 were males and 580 were females with the age group 25 years. The prevalence of diabetes was 16.2% (9.0% known, 7.2% recently diagnosed) in males, and 11.7% (6.3% previously, 5.3% recently identified) in females. (Hydrie et al., 2004). Conducted work on 103 children of Karachi between the age group of 8-12 years among them 80% of children found to be the family history diabetes mellitus. (Mahar et al., 2010) performed a community based study in both male and female they examine the prevalence diabetes mellitus type 2 in the rural population of Gaddap town, Karachi Pakistan. The victims were 30 years and above aged were included; 19211 victims were examined among them 1677 subjects were suffering from DM, with the prevalence 8.73%, with 1258 (6.55%) reported and 419 (2.18%) lately detected cases. (Chuhan et al., 2010) make an observational work on the prevalence of DM a total of 44800 patients were selected who were suffering from various diseases like Hypothyroidism, Hyperthyroidism, Hepatitis, Renal and other diseases only 602 victims were suffering from DM among them only 30 patient were observed with DM Type 1 and 572 were suffering from DM Type 2 the prevalence was 4.98% suffering from Type 1 and 95. 02% victims were Type 2 among them 63.12% were male and 36.88 were females. (Bukhari et al., 2016) made survey on Diabetes Mellitus and reported a total of 11.20% of population were suffering from DM among them 9.19% were reported foe women and 16.2% of man suffering from DM (Parveen et al., 2017) survey on the diabetes in Hyderabad district of Sindh Pakistan. They randomly select 240 samples from Hyderabad out of which 142 males and 98 females the total prevalence was 59% male and 41% of females.

**Prevention control and recommendations.**

Regular physical and mental activates should be done to reduce the obesity and depression which are the main cause of diabetes mellitus.

Proper and healthy proteious and multi vitamins diet should be taken.
To minimize the carbohydrate intake.
The most important preventive measure that can be taken to prevent DM outbreak in the future is to arm people with knowledge through proper medical counseling and massive education, because it is the key factor to maintain a healthy life style.
It is necessary for family doctor to train the people having DM for proper medication.
They can also advise defensive plan that based on suitable diet and physical activity.

Advance diabetic health care should be establish in rural and urban areas essential glucose measuring unit glucometers should be provided to check blood glucose.

DM awareness, normal physical work out, dietary plains of provision should be given to the people to manage DM in the state. DM and its snags must be habitually discussed. Awareness seminars about diabetes should be arranged.
Conclusion:
The percentage of DM is rising gradually due to increasing in populace, aging and urbanization, and change in life style and physical activates causes obesity and depression which lead to word DM.

References:
1. Ansari, R.M., Dixon, J.B., Browning, C.J. 2014. Self-management of type 2 diabetes in middle-aged population in Pakistan and Saudi Arabia. Open J Prev Med 4:396-407.
2. Ansari, R.M., Dixon, J.B and Browning. C.J. (2014) Self of type 2 diabetes in middle-aged population of Pakistan and Saudi Arabia. Open J Prec Med 4:396-407.
3. Ansari, R.M., Dixon, J.B and Browning. C.J. 2015. Type 2 Diabetes: Challenges to Health Care System of Pakistan, International Journal of Diabetes Research 4(1): 7-12. doi:10.5923/j.jiedadabetes.20150401.02
4. Badruddin, S.H., Molla, A., Khursheed, M., an Vaz, S. 1993. The impact of nutritional counselling on serum lipids, dietary and physical activity patterns of school children. J Pak Med Assoc 43:235-7.
5. Basit, A. and Williams R. 2006 World diabetes day. Promoting care in underserved communities: launchinworld diabetes day in Karachi. Available from URL: http://www.worlddiabetesday.org/
download.cfm?DownloadFile=4980A346-EA68-2137-A7C7545317E72D96.
6. Basit, A., Riaz, M. and Fawwad, A. 2015. Improving diabetes care in developing countries: The example of Pakistan. Diabetes Res clin pract 107:224-32.
7. Baird, C.R.W. and Toft, A.D. 1991. Endocrine and metabolic disease In: Davidson’s principles and practice of medicine. Churchill Livingston, pp. 607-698.
9. Din, I. 2014. Health Outcomes and the Pakistanni Population Cambrige Scholars Publishing.
10. Fariha, F., Shaheen, A., Zafar, I.H., Asher, F., Abdul, B., Samad, S. and Akhtar, H. 2010 Depression and Diabetes in High-Risk Urban Population of Pakistan. The Open Diabetes Journal. 3, 1-5
11. Global status report on noncommunicable diseases 2014. Geneva, World Health Organization. [Cited on January 31, 2015]. Available from URL: http://www.who.int/global-coordination- Hakeem R, Thomas J, Badruddin SH. Urbanisation and coronary heart disease risk factors in South Asian children. J Pak Med Assoc 2001;51:22-8.
12. Hakeem, R. 2001. Socio-economic differences in height and body mass index of children and adults living in urban areas of Karachi, Pakistan. Eur J Clin Nutr 55:400-6.
13. Hakeem, R., Thomas, J., Badruddin, S. H 2002. Urbanisation and activity pattern of south Asian children. J.Pak.Med.Assoc. 52(9), 402-407.
14. Hakeem, R., Thomas, J., Badruddin, S.H. 2002. Food habits and nutrient density of diets of Pakistani children living in different urban and rural settings. J Health Popul Nutr 20:255-63.
15. Hasnain, S. and Sheikh, N.H. 2009. Knowledge and practices regarding foot care in diabetic patients visiting diabetic clinic in Jinnah Hospital, Lahore. Journal of Pakistan Medical Association Vol. 59, No. 10, October.
16. Hussain, A. and Ali, I. 2016. Diabetes Mellitus in Pak: A major Public Health Concern Arch Pharma Pract 7: 30-32.
17. Hydrie Z.I.M., Basit, A., Badruddin, N. and Ahmedani., M.Y. 2004. Diabetes Risk Factors in Middle Income Pakistani School Children. Pakistan Journal of Nutrition 3 (1): 43-49.
18. Ijaz, S. and Ajmal., A.M. 2011. Experiencing Type II Diabetes in Pakistan Journal of Social and Clinical Psychology , Vol. 9, 50-56.
19. International Diabetic Federation Atlas. 2006 showing prevalence of diabetes in 2007 and future projection for 2025 [Internet]. [updated 2009]. Available from: http://www.eatlas.idf.org/ index397.html.
20. International Diabetes Federation (2012). Diabetes Prevalence. http://www.idf.org/home/index.cfm. International diabetes federation. [Cited on January31, 2015]. Available from URL: http://www.idf.org/ membership/asia/pakistan
21. International diabetes federation. Diabetes Atlas. Sixth Edition 2013. [Cited on January 22, 2015.] Available from URL: http://www.idf.org/diabetesatlas
22. Iqbal, R., Rafique, G., Badruddin, S., Qureshi, R. and Cue, R. 2007. Gray-Donald K. Increased body fat percentage and physical inactivity are independent predictors of gestational diabetes mellitus in South Asian women. Eur J Clin Nutr 61:736-42.
23. Jafar, T.H. 2006 Women in Pakistan have a greater burden of clinical cardiovascular risk factors than men. Int J Cardiol 106:348-54.
24. Jafar, T.H., Qadri, Z., Islam, M., Hatcher, J., Bhutta, Z.A. and Chaturvedi, N. 2008 Rise in childhood obesity with persistently high rates of undernutrition among urban school-aged Indo-Asian children. Arch Dis Child 93:373-8.
25. Jalil, F., Moore, S.E. and Butt, N.S. 2008. Early-life risk factors for adult chronic disease: follow-up of a cohort born during 1964-1978 in an urban slum of Lahore, Pakistan. J Health Popul Nutr 26:12-21.
26. Khalid, N., Khan, E.A., Saleem, S., Tahir, A., Mahmood, H. and Saleem, S. 2014 Prevalence and Associated Factors of Cigarette Smoking among Type 2 Diabetes Patients in Pakistan. 6: 4
27. Khuwaja, A.K., Fatmi, Z., Soomro, W.B. and Khuwaja NK. 2003. Risk factors for cardiovascular disease in school children—a pilot study. J Pak Med Assoc; 53:396-400.

28. Khuwaja, A.K., Khowaja, L.A. and Cosgrove, P. 2010. The economic costs of diabetes in developing countries: some concerns and recommendations. Diabetologia 53:389-90.

29. Mahar, P.S., Awan, M.Z, Manzar, N. and Memon, M.S. 2010. Prevalence of type-II diabetes mellitus and diabetic retinopathy: the Gaddiap study. J Coll Physicians Surg Pak. 20:528-32.

30. Kumar, P., Clark, M. and Anderson, G. 2002. Diabetes Mellitus and other disorders of Metabolism. Types of Diabetes. Clinical Medicine (Fifth Edition); WB Saunders 2:1074-1075.

31. Mazhar, M. 2012. Population, Labour force and employment. chap 12. in: Pakistan eco-nomic survey 2012-13. government of Pakistan, ministry of finance. [Cited on January 31, 2015]. Available from: URL: http://finance.gov.pk/survey/chapters_13/12-Pop-ulation.pdf

32. National Action Plan for Prevention and Control of Non-Communicable Diseases and Health Promotion in Pakistan. Islamabad, Pakistan: tripartite collaboration of the Ministry of Health, Government of Pakistan; WHO, Pakistan office, and Heartfile; 2004. [Cited on January 23, 2015]. Available from: URL: http://www.physicalactivityplan.org/resources/Pakistan.pdf

33. National Diabetes Data Group. Classification and diagnosis of diabetes mellitus and other categories of glucose intolerance. Diabetes 1979; 18: 1039-1057.

34. National Institute of Health, Ministry of Health Government of Pakistan. National nutrition survey 1985-87. 1988. Islamabad, National Institute of Health, Ministry of Health, Government of Pakistan.

35. Naveed, S., Ali, Z., Ahmed, S.M., Yousuf, A.M, Sameeta., and Maheshwary, A.N. 2016. Prevalence of Hypertension in Type 2 Diabetic Pak J Physiol 12(1):31–4.

36. Nisar, N., Khan, I.A., Qadri, M.H. and Sher, S.A. 2008. Knowledge And Risk Assessment Of Diabetes Mellitus At Primary Care Level: A Preventive Approach Required Combating The Disease In A Developing Country. Pak J Med Sci October - December 1 (24): 5 pp 667-672.

37. Nishtar S, Shera S. Diabetes prevention and control as a part of an integrated non-communicable disease strategy: the Pakistan approach. Practical DiabetesInt 2006; 23:332-4.

38. Sheikh, R.A., Jabbar, A., Michels, R.P. and DeVries, J.H. 2008. Metabolic risk factors, insulin-resistance and lifestyle in children of type 2 diabetes patients in Karachi, Pakistan. Diabetes Res Clin Pract 80:399-404.

39. Shah, P., Basu, A., Basu, R. and Rizza, R. 1999 Impact of lack of suppression of glucagon on glucose tolerance in humans. American Journal of Physiology 277: 283–290.

40. Shera, A., Rafique, G., Khwaja, I.A., Baqai, S., Khan, L. and King, H. 1995. Pakistan national diabetes survey: prevalence of glucose intolerance and associated factors in Shikarpur, Sindh Province. Diab Med 12: 1116-21.

41. Shera, A., Rafique, G., Khwaja, I.A., Baqai, S., Khan, L. and King, H. 1999. Pakistan national diabetes survey: prevalence of glucose intolerance and associated factors in North West Frontier Province (NWFP) of Pakistan. J Pak Med Assoc 49: 206-11.

42. Shera, A.S, Jawad, F., Maqsood, A., Jamal, S., Azfar, M. and Ahmed, U. 2004. Prevalence of chronic complications and associated factors in type-2 diabetes. J Pak Med Assoc 54:54-9.

43. Shera, A.S., Jawad, F. and Maqsood, A. 2007. Prevalence of diabetes in Pakistan.Diab Res Clin Pract 76:219-22.

44. The World Bank. Data, population total. Pakistan. [Online] [Cited 2015 August 12]. Available from: URL:// data worldbank.org/ indicator/ SP.POP.TOTL.

45. Vileikyte, L. 2005. The psychosocial impact of diabeticfoot damage. Diab Voice 50:11-13.

46. WHO Diabetes. [online] 2009 [cited 2010 July19]. Available from: http://www.who.int/mediacentre/factsheets/fs312/en/

47. World Health Organization Expert Committee on Diabetes Mellitus. Second WHO Technical Report, Series 646. Geneva: World Health Organization 1980.

48. World health Organization (WHO 1999).Diagnosis and classification of diabetes mellitus.Definition and diagnostic criteria for Diabetes mellitus and other categories of glucose intolerance.Report of a WHO consultation; pp: 04.

49. World Health Organization. Noncommunicable diseases. Fact sheet. Updated January 31, 2015. [Cited on January 31, 2015]. mechanism/publications/global-status-report-ncds-2014-eng.pdf.

50. Zafar, M.Z., Riaz, M., Asim, M., Bashir, T., Ahsan, M. and Abu-Huzaifa M. (2017) Prevalence of Complexities Hypertension Associated with Type 2 Diabetes: A Cross Sectional Study Diversity and Equality in Health and Care 14(6): 313-315

51. Zimmet, P., Alberti, K.G., and Shaw, J. 2001. Global and societal implications of the diabetes epidemic. Nature 414, 782–787.

52. Zuhaid M, Zahir K.K., Inayat and Diju I.U. 2012. Knowledge and perception of Diabetes in Urban and Semi urban population of Peshawar Pakistan J Ayub Med Coll Abbottabad;24(1).