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THE PHARMACOECONOMIC EVALUATION ANALYSIS FOR TREATING LONG TERM DIABETIC COMPLICATIONS IN TERTIARY CARE HOSPITAL

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ABSTRACT

Diabetes is a major public health concern associated with huge economic burden in developing countries, According to Diabetes Atlas published by the International Diabetes Federation (IDF), there were an estimated 40 million persons with diabetes in India in 2007 and this number is predicted to rise to almost 70 million people by 2025, the economic burden due to diabetes in India is amongst the highest in the world. This study aimed to assess the direct costs involved in treating long-term diabetic complications among hospitalized patients with type 2diabetes. A total of 253 patients were recognized and are divided into groups based on the presence of complications. Details on socio-demography, hospitalization, direct costs of all patient care were recorded. The data on expenditure was obtained from hospital bills. A comparison was made for estimating cost involved in treating pt with and without complications. Based on the results obtained the expenditure for hospital admissions was higher for patients with foot and cardiovascular complications and it was highest if they had presence of two complications. Hence this study emphasizes the importance of minimizing burden on the patients for achieving better outcome therapeutically as well as economically.

KEYWORDS: Health care costs, Diabetes, Complications, Hospitalization, Economic burden.

INTRODUCTION

Diabetes mellitus is a group of metabolic diseases associated with abnormally high levels of glucose in the blood. The underlying causes of diabetes differ by type, but they include genetics, environmental factors, history of gestational diabetes, excess weight, and sedentary lifestyle.[1] Five recent studies highlight the prevalence and national economic burden associated with diabetes by type and the stage of progression of the disease.[2–6] Nearly 17.5 million people living in the United States were diagnosed with type 1 or type 2 diabetes mellitus in 2007, at an estimated cost of $174.4 billion in higher medical costs and lost productivity.[2] For the approximately 16.5 million people with type 2 diabetes, the annual national cost is $159.5 billion, and for the approximately 1.0 million people with type 1 diabetes, the cost is $14.9 billion.[3] Another 6.3 million U.S. adults have undiagnosed diabetes mellitus—that is, they are unaware that they have the disease and hence are untreated; the associated cost was $18 billion in 2007.[4] Nearly fifty-seven million adults have prediabetes: a state of elevated blood glucose levels that is a precursor to diabetes and is associated with $25 billion annually in higher medical costs.[5] Gestational diabetes mellitus, which develops during pregnancy and usually disappears upon the delivery of the infant, affects about 4.5 percent of all pregnancies (an estimated 180,000 cases in 2007), at an associated cost of $636 million.[6] Together, the annual medical and indirect costs associated with all of these conditions is approximately $218 billion. Estimates of the national cost of diabetes—often reported as “staggering” and “astounding”—bring attention to diabetes and highlight its economic burden with respect to spending on other national priorities.[7,8]

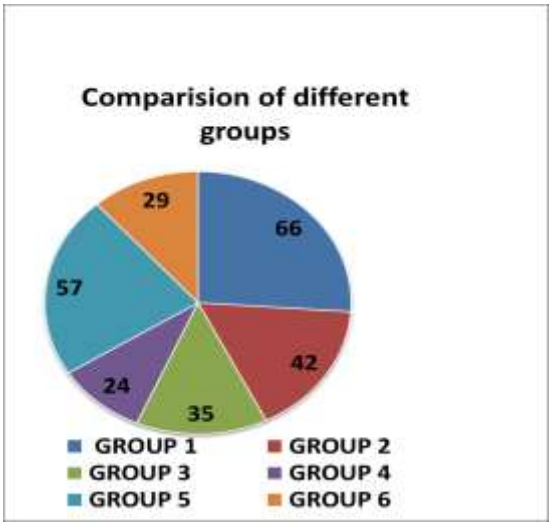
MATERIALS AND METHODS

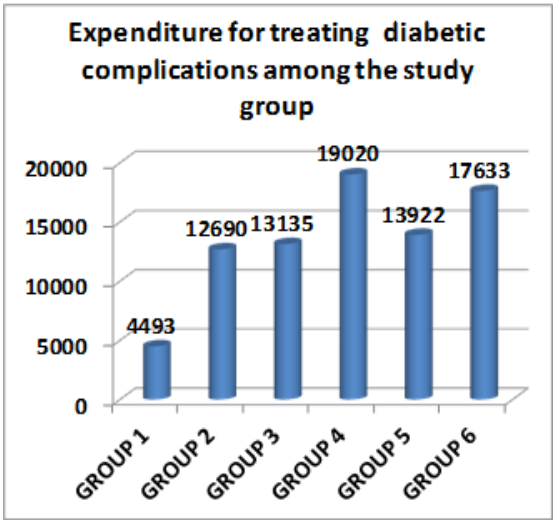
A Prospective observational Study was conducted for a period of 6months (from May 2016 to October 2016) and was aimed to assess the direct costs involved in treating long-term diabetic complications among hospitalized patients with type 2 diabetes. The subjects suffering from diabetics and with severe complications were included in the study. Subjects who are in early stages of diabetic complications and those with the presence of three or more than three complications were excluded from the study. After meeting the criteria a total of 253 patients were identified out of which 151 were males and 102 were females. Based on the presence of complications patients were divided into groups and were compared with a group without any complications. Group 1; n=66 representing Diabetes patients without any complications, Group2; n=42 representing patients with DM+ chronic kidney disease, Group3; n=35 representing patients with DM +cardiovascular complications, Group4; n=24

representing patients with DM and who underwent foot amputation, Group5; n=57 representing DM with retinal complications and Group6; n=29 representing patients with DM and presence of any two complications. Details on socio-demography, hospitalization, direct costs of all inpatient care were recorded. The data on expenditure was obtained from hospital bills.

RESULTS

The data collected was analyzed and was found that the patients with foot complications or with presence of two diabetic complications tend to stay long for every inpatient admission. On an average, patients with foot complications (19020 INR) and those who had two complications (17633 INR) spent four times more and patients with renal disease (12690 INR),cardiovascular (13135 INR) and retinal complications (13922 INR) spent three times more than patients without any complications (4493 INR). The median expenditure for hospital admissions for the previous two years was higher for patients with foot and cardiovascular complications and it was found to be highest if they had presence of two complications.





DISSCUSSION

In this study it was observed that Group 4 who underwent foot amputation has spend the more expenditure than the other groups. On an average, patients with foot complications (19020 INR) and those who had two complications (17633 INR) spent four times more and patients with renal disease (12690 INR),cardiovascular (13135 INR) and retinal complications (13922 INR) spent three times more than patients without any complications (4493 INR). The median expenditure for hospital admissions for the previous two years was

higher for patients with foot and cardiovascular complications and it was highest if they had presence of two complications.

CONCLUSION

Health care costs & health care needs are growing high everywhere globally. The present study emphasizes the economic burden on patients hospitalized with various complications. It is important to balance the treatment cost with the consequences. It is therefore important to minimize this burden on the patients, and hence he can be benefitted therapeutically, as well as economically.

REFERENCES

1. American Diabetes Association. Standards of medical care in diabetes —2008. Diabetes Care, 2008; 31(1): S12–54.
2. American Diabetes Association. Economic costs of diabetes in the U.S. in 2007. Diabetes Care, 2008; 31(3): 576–615.
3. Dall TM, Mann SE, Zhang Y, Quick WW, Seifert RF, Martin J, et al. Distinguishing the economic costs associated with type 1 and type 2 diabetes. Popul Health Manag, 2009; 12(2): 103–10.
4. Zhang Y, Dall TM, Mann SE, Chen Y, Martin J, Moore V, et al. The economic costs of undiagnosed diabetes. Popul Health Manag, 2009; 12(2): 95–101.
5. Zhang Y, Dall TM, Chen Y, Baldwin A, Yang W, Mann S, et al. Medical cost associated with prediabetes. Popul Health Manag, 2009; 12(3): 157–63.
6. Chen Y, Quick WW, Yang W, Zhang Y, Baldwin A, Moran J, et al. Cost of gestational diabetes mellitus in the United States in 2007. Popul Health Manag, 2009; 12(3): 165–74.
7. Donaldson C, Narayan KM. The cost of diabetes. A useful statistic? Diabetes Care, 1998; 21(8): 1370–1.
8. Piette JD. The future of diabetes disease management: integrating lessons learned from clinical, health services, and policy research. Am J Manag Care, 2005; 11(4): 203–5.
9. This document is available as an online supplement to the article at http://content.healthaffairs.org/ cgi/content/full/29/2/ hlthaff.2009.0155/DC1
10. Benichou J. A review of adjusted estimators of attributable risk. Stat Methods Med Res., 2001; 10(3): 195–216.
11. Boles M, Pelletier B, Lynch W. The relationship between health risks and work productivity. J Occup Environ Med., 2004; 46(7): 737–45.

12. Goetzel RZ, Hawkins K, Ozminkowski RJ, Wang S. The health and productivity cost burden of the "top 10" physical and mental health conditions affecting six large U.S. employers in 1999. J Occup Environ Med, 2003; 45(1): 5–14.
13. Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. J Occup Environ Med., 2004; 46 (4): 398–412.
14. Kanaya AM, Grady D, Barrett- Connor E. Explaining the sex difference in coronary heart disease mortality among patients with type 2 diabetes mellitus: a meta-analysis. Arch Intern Med., 2002; 162(15): 1737–45.
15. Ng YC, Jacobs P, Johnson JA. Productivity losses associated with diabetes in the US. Diabetes Care, 2001; 24(2): 257–61.
16. Stewart WF, Ricci JA, Chee E, Hirsch AM, Brandenburg NA. Lost productive time and costs due to diabetes and diabetic neuropathic pain in the US workforce. J Occup Environ Med., 2007; 49(6): 672–9.
17. Tunceli K, Bradley CJ, Nerenz D, Williams LK, Pladevall M, Elston LJ. The impact of diabetes on employment and work productivity. Diabetes Care. 2005;28(11):2662–7.
18. Vijan S, Hayward RA, Langa KM. The impact of diabetes on workforce participation: results from a national household sample. Health Serv Res., 2004; 39(6 Pt 1): 1653–69.
19. Von KM, Katon W, Lin EH, Simon G, Ciechanowski P, Ludman E, et al. Work disability among individuals with diabetes. Diabetes Care, 2005; 28(6): 1326–32.
20. Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2007 [Internet]. Atlanta (GA): Centers for Disease Control and Prevention [updated 2007; cited 2010 Jan 5]. Available from: http://www.cdc.gov/diabetes/ pubs/pdf/ndfs_2007.pdf
21. Search for Diabetes in Youth Study Group. The burden of diabetes mellitus among U.S. youth: prevalence estimates from the SEARCH for Diabetes in Youth Study. Pediatrics., 2006; 118: 1510–8.
22. Sisko A, Truffer C, Smith S, Keehan S, Cylus J, Poisal JA, et al. Health spending projections through 2018: recession effects add uncertainty to the outlook. Health Aff (Millwood), 2009; 28(2): 346–57.
23. U.S. Census Bureau. Selected economic characteristics: 2007. American Community Survey 1-Year Estimates Washington (DC): U.S. Census Bureau [updated 2009; cited 2010 Jan 11]. Available by searching from: http://factfinder.census.gov/

24. Knowler WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. N Engl J Med., 2002; 346(6): 393–403.
25. Goetzel RZ, Ozminkowski RJ, Villagra VG, Duffy J. Return on investment in disease management: a review. Health Care Financ Rev., 2005; 26(4): 1–19.
26. Russell LB. Preventing chronic disease: an important investment, but don't count on cost savings. Health Aff (Millwood), 2009; 28(1): 42–5.
27. Goetzel RZ. Do prevention or treatment services save money? The wrong debate. Health Aff (Millwood), 2009; 28(1): 37–41.