FACTORS ASSOCIATED WITH HEALTH CARE COSTS AMONG ELDERLY PATIENTS WITH DIABETIC NEUROPATHY

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OBJECTIVE: There are limited data on the economic impact of mood disorders among patients with diabetic neuropathy (DN). This study examines factors associated with health care costs among elderly DN patients with or without depression/anxiety (DA). METHODS: Using a retrospective cohort design and administrative claims data, we assessed the predictors of total health care costs over a one-year follow-up period for over-age-65 patients with 1+ diagnosis of DN. The index date was defined as the first observed medical claim with a diagnosis for DN in 2005. Patients with continuous eligibility for 12 months prior to and following the index date were included. Two cohorts of patients were constructed for individuals with DA (DN-DA) or without (DN-only). Multivariate linear regression was performed to assess whether DN-DA patients have higher health care costs than DN-only patients, controlling for demographic and clinical characteristics (diabetes-related comorbidities and treatment regimen for diabetes observed within 12 months prior to index date).

RESULTS: We identified 16,831 DN-only patients, and 1699 DN-DA patients. The DN-only and DN-DA groups were similar by age (75.6 vs 75.4, p = 0.44), but DN-DA patients were more likely to be female (56% vs. 47%, p < 0.01). DN-DA patients had higher prevalence of diabetes-related comorbidities for cardiovascular disease, nephropathy, neuropathy, obesity, and hypoglycemic events than DN-only patients (all p < 0.01). Coexisting chronic conditions were higher in DN-DA patients (p < 0.01). Controlling for differences in demographic and clinical characteristics, DN-DA patients had $9785 (p < 0.01) higher total health care costs than patients with DN-only. Factors associated with increased costs included insurance type, geographical region, diabetes-related comorbidities, and insulin therapy. CONCLUSION: These findings indicate that the health care costs were significantly higher for DN patients with depression/anxiety relative to those without these mood disorders.
and acute leukemia ($OR = 3.4$), end-stage liver disease ($OR = 2.8$), renal failure ($OR = 2.8$), kidney transplant status ($OR = 2.8$), severe hematomatous disorders ($OR = 2.4$), decubitus ulcer of skin ($OR = 1.9$), congestive heart failure ($OR = 1.9$), pancreatic disease ($OR = 1.7$), and major depressive/bipolar/paranoid ($OR = 1.7$), peripheral vascular disease ($OR = 1.6$), and type 1 diabetes ($OR = 1.4$). Age, gender, and type of insurance were not significantly related to high charges.**

**CONCLUSION:** The most expensive DN patients spent over 50% of the total charges. The comorbidities of DN patients incurred significant treatment charges. Managing comorbidities is important for treating patients with DN.

**WITHDRAWN**

**PDB40**

**MEDICAL CARE OF PATIENTS WITH DIABETIC NEUROPATHY:**

**IMPACT OF TYPE 1 DIABETES AND PRESENCE OF OTHER DIABETES-RELATED COMPLICATIONS**

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**OBJECTIVE:** Type 1 (T1D) and type 2 (T2D) diabetes are serious and costly medical conditions. Complications related to diabetes include diabetic neuropathy (DN), heart disease, kidney disease, visual impairment, depression, and amputation. Using claims data, we estimated the impact of T1D or any other diabetes-related complications on health care charges and utilization among DN patients. **METHODS:** Individuals who were 18–64 years old and continuously enrolled in a large US commercial plan between July 2004 and June 2006 were identified. The DN cohort was constructed by selecting patients with at least 1 DN diagnosis anytime between July 2004 and June 2005 (Year 1). We compared the prevalence of other diabetes-related complications by type of diabetes (T1D vs. T2D). Among DN patients with no or $\geq 1$ other diabetes-related complications, we used multivariate regressions to assess the marginal contribution of T1D vs. T2D on Year 2 (July 2005 through June 2006) health care charges and utilization. **RESULTS:** The majority of DN patients (7720 out of 8665) had $\geq 1$ other diabetes-related complications, and T1D accounted for 42% of the DN cohort. T1D patients had more co-morbid medical conditions than patients with T2D (7.6 vs. 6.1 among patients with no other diabetes-related complications). The prevalence was higher for all other diabetes-related complications, except heart disease, among patients with T1D than patients with T2D. Controlling for comorbidities, patients with T1D or T2D had similar health care utilization among DN patients with no other diabetes-related complications; however, patients with T1D had significantly higher total medical charges than patients with T2D among those with $\geq 1$ other diabetes-related complications. **CONCLUSION:** Many DN patients have T1D and other diabetes-related complications, which can have significant impact on health care charges and utilization.

**PDB41**

**DETERMINANTS OF THE ECONOMIC BURDEN OF DIABETES HOSPITALIZATIONS IN TENNESSEE**

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**OBJECTIVE:** Tennessee residents face a heavy economic burden of diabetes. Costs of hospitalization and treatment were $2.9 billion in 2003, with Tennessee ranking fifth among the 50 states in the prevalence of diagnosed diabetes. This study explores the factors influencing these high inpatient and outpatient hospital costs for patients with a primary diagnosis of diabetes in Tennessee. We hypothesize that total charges will be most associated with number or type of comorbidities, and also influenced by race/ethnicity, source of admission, and type of insurance. **METHODS:** This study utilized inpatient and outpatient files from the 2003 Tennessee Hospital Discharge Data. Regression models of log inpatient and outpatient charges were estimated for all hospitalizations with a primary diagnosis of diabetes (ICD-9 code: 250). **RESULTS:** As predicted, the most significant cost drivers were co-morbidities. A secondary diagnosis of diabetic ulcer added nearly $4800 to inpatient charges for diabetics, and a diagnosis of heart failure contributed an additional $2000. For outpatients, a secondary diagnosis of fluid balance disorders added $511 to total charges. Blacks, males, the elderly, and those insured by managed care plans had significantly higher inpatient charges (all $p < 0.01$). In contrast, blacks, females, and those with private insurance had significantly higher outpatient charges (all $p < 0.01$). **CONCLUSION:** To design strategies for decreasing the high cost of diabetic treatment, it is critical to understand the factors that induce increases in cost. The analysis revealed that of the seven most frequent co-morbidities, ulcers contributed most to the cost of diabetic hospitalizations. Complications of diabetic ulcers may have necessitated further or longer treatment, ultimately increasing charges. Thus, one strategy to reduce excessive costs of treatment is to focus on ulcer prevention among diabetics.