

Socioeconomic evaluation of medical intervention in patients with early detection of diabetic neuropathy in Bangladesh

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Aims: The economic burden resulting from diabetic neuropathy (DN) consumes a major portion of resources allocated for health-care services. This study was undertaken to assess the cost-effectiveness of medical intervention in patients with DN.

Methods: Two hundred patients with DN, at least 1 year of follow-up, were purposively selected from Out-Patient Dept of BIRDEM, Bangladesh. Of them 100 were late in detection of DN (LDN) & 100 were detected early (EDN). The degree & extent of complications like cardiopathy, retinopathy, nephropathy & vasculopathy and direct, indirect & incremental cost of complications were calculated. Comparison was made between the groups.

Results: A total of 200 patients were considered for an average of 365 days, amounting to 656 person-years of observation in total. In LDN group, 22% had Diabetic Peripheral Neuropathy (DPN), 17% had Diabetic Autonomic Neuropathy (DAN), 11% had Diabetic Proximal Neuropathy (DPXN) & 9% had Diabetic Focal Neuropathy (DFN). In EDN group, 16% had DPN and 7% had DAN. In LDN & EDN, 32% & 48% had one complication, 29% & 10% had two and 20% & 6% had more than two complications respectively. The most frequent complication was cardiopathy, which affected 33% patients in LDN & 27% in EDN. The average annual cost of care was US\$ 26846 (direct US\$ 17893 & indirect US\$ 8953), with an average US\$ 134 per patient. Among the average annual cost LDN consumed US\$ 18918 (US\$ 189 per patient) & EDN US\$ 7928 (US\$ 79 per patient). US\$ 13473 (50%) of costs was attributable to Drugs for both groups of which US\$ 10419 (77%) was for LDN & US\$ 3054 (23%) for EDN, US\$ 7653 (29%) to hospitalizations of which US\$ 4914 (64%) for LDN & 2739 (36%) for EDN. In case of diagnostics & visits the corresponding values were US\$ 1953 (55%) & 1580 (45%) and US\$ 1631 (75%) & 556 (25%) for LDN & EDN respectively. The annual medical costs increased with the increased number of complications from US\$ 1320 to 2296 to 3989 & to 6520 in LDN with one, two, three & more than three complications (other than DN) which is increasing at a rapid rate and US\$ 917 to 1556 to 1872 & to 2073 in EDN respectively, increasing at a diminishing marginal rate. The regression equation showed that medical cost is significantly related to complications tested in both univariate ($P < 0.0001$) & multiple linear regression analyses ($R^2 = 0.69$; $F = 81.5$, $P < 0.0001$).

Conclusion: Proper management with regular screening substantially reduces the expenditure related to care & complications of patients with DN even in a developing country. Strategies aimed at early detection & prevention of DN will reduce medical costs in a substantial way.

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