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Direct Medical Costs in Patients with Diabetic Retinopathy in Urmia, 2023

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ABSTRACT

Introduction: Diabetic retinopathy (DR) is a progressive microvascular complication of diabetes mellitus that causes vision disorders and blindness. Due to the high prevalence of diabetes and its complications in Iran, the aim of this study was to estimate the direct medical costs associated with different stages of DR severity in patients with diabetes in Urmia in 2023.

Methods and Materials: In this study, DR severity was classified into non-proliferative DR (NPDR) and proliferative DR (PDR). NPDR was further categorized into mild and moderate to severe NPDR, while PDR was categorized into high-risk and advanced PDR. A total of 210 patients with DR participated in the study, comprising 22 patients with mild NPDR, 77 patients with moderate to severe NPDR, 47 patients with high-risk PDR, and 64 patients with advanced PDR. Data collection was conducted using a standardized questionnaire, which was completed through interviews with patients or their family members in 2023. The questionnaire inquired about the direct medical costs incurred by patients, including doctor's fees, intravitreal bevacizumab, laser treatments, medications, surgeries, and procedures. The average cost was calculated for each group using Stata 16, considering a currency conversion rate of 42,000 Tomans per USD. One-way analysis of variance and post-hoc tests were employed to analyze differences between the various groups.

Results: The average annual direct cost of DR treatment was $166.07 (95% CI: 137.56-194.58). Specifically, the average direct costs for mild NPDR, moderate to severe NPDR, high-risk PDR, and advanced PDR were $48.47 (95% CI: 20.43-76.51), $121.18 (95% CI: 92.49-149.88), $218.06 (95% CI: 162.57-273.55), and $222.32 (95% CI: 148.87-295.76), respectively. The differences in average direct costs among the various retinopathy groups were statistically significant ($p < 0.01$).

Conclusion and Discussion: The results underscore the substantial financial burden of DR treatment, which escalates with disease severity. Consequently, it is imperative to invest in prevention, screening, and early treatment to delay or prevent disease progression. Notably, the cost for patients with high-risk and advanced PDR was approximately four times greater than that for patients with mild NPDR, and more than one and a half times greater than that for patients with moderate to severe NPDR.

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