EE385

Cost and Health Care Resource Utilization in Patients Starting Intravitreal Dexamethasone or Anti-Vascular Endothelial Growth Factor Therapy for Diabetic Macular Edema

Richard H. Stanford,[1] Daniel Mercer,[2] Andrew Rava,[2] Aaron Crowley,[2] Changgeng Zhao[3]

[1]Aesara, Chapel Hill, NC, USA; [2]Genesis Research LLC, Hoboken, NJ, USA; [3]AbbVie Inc., Madison, NJ, USA

OBJECTIVE

To compare ocular health care resource utilization (HCRU) and costs between patients initiating dexamethasone intravitreal implant (DEX implant) or branded intravitreal anti-vascular endothelial growth factor (VEGF) therapy for diabetic macular edema (DME)

CONCLUSIONS

Use of DEX implant as monotherapy or first-combination therapy in DME incurred lower HCRU and costs over the first 2 years than use of branded anti-VEGF monotherapy or anti-VEGF–first combination therapy

Treatment costs were similar between patients on branded anti-VEGF monotherapy and anti-VEGF–first combination regimens

For additional information or to obtain a PDF of this poster

Scan QR code or use the following link to download an electronic version of this presentation and other AbbVie ISPOR 2022 scientific presentations:

https://abbvie1.outsystemsenterprise.com/GMAEventPublications/Assets.aspx?ConferenceId=340

QR code expiration: April 15, 2023

To submit a medical question, please visit www.abbviemedinfo.com

Allergan, an AbbVie company, funded this analysis and was involved in review and approval of the publication. All authors had access to relevant data and participated in the drafting, review, and approval of this publication. No honoraria or payments were made for authorship. Editorial support was provided by Andrew Fitton, PhD, Evidence Scientific Solutions, Inc (Horsham, UK).

The authors report no financial conflicts of interest.

References

1. Cheung N, et al. *Lancet*. 2010;376:124–136.
2. Varma R, et al. *JAMA Ophthalmol*. 2014;132:1334–1340.
3. Nguyen QD, et al. *Ophthalmology*. 2012;119:789–801.
4. Korobelnik J-F, et al. *Ophthalmology*. 2014;121:2247–2254.
5. Dugel PU, et al. *Clin Ophthalmol*. 2015;9:1321–1335.

Presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 2022 Annual Congress; May 15–19, 2022; Washington, DC, USA

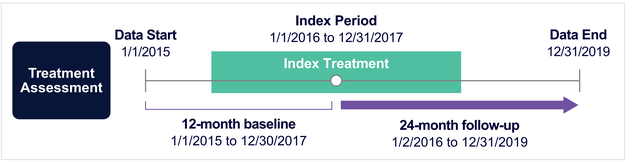
INTRODUCTION

- Diabetic eye disease, including diabetic retinopathy and DME, is a leading cause of vision loss worldwide[1]
- DME is characterized by retinal capillary leakage, intra- and subretinal swelling, and progressive deterioration of central vision, and affects ≈746,000 adults in the United States[2]
- Treatment options include intravitreal anti-VEGFs (ranibizumab, aflibercept, and off-label bevacizumab), and intravitreal corticosteroids (dexamethasone, fluocinolone, and off-label triamcinolone)
- Intravitreal anti-VEGF agents improve visual acuity in DME,[3,4] but require monthly/near-monthly injections
- DEX implant provides retinal drug delivery for up to 6 months, avoiding the need for frequent injections[5]

METHODS

- Retrospective observational analysis of administrative claims (IBM MarketScan Commercial, Medicare, and Medicaid databases, 1/1/2015–12/31/2019)
- Inclusion criteria: initiation of *de novo* anti-VEGF or DEX implant therapy (1/1/2016–12/31/2017); age ≥18 years at treatment start (index date); continuous database enrollment for ≥12 months pre-index and ≥24 months post-index; and ≥1 pre-index diagnoses of DME
- Exclusion criteria: claim(s) for study treatment during pre-index period
- Patients categorized into those on index drug monotherapy, and those switching to/adding alternative treatments (“index drug–first combination therapy”)
- Outcomes of interest: DME-related HCRU (office visits, laser treatment, vitrectomy, optical coherence tomography, fluorescein angiography, intravitreal injections), and associated costs
- HCRU and costs were estimated over 12 and 24 months post-index in monotherapy (DEX implant, branded anti-VEGF, bevacizumab) and combination therapy (DEX implant–first, anti-VEGF–first, bevacizumab–first) cohorts using a generalized linear model adjusted for inter-cohort differences in baseline characteristics

Study Schematic



RESULTS

Study Patients

- DME patients receiving index treatment with a branded anti-VEGF (ranibizumab or aflibercept; n = 2688), unbranded anti-VEGF (bevacizumab; n = 4189) or DEX implant (n = 158) were identified and categorized into the following post-index treatment cohorts:
  - DEX implant monotherapy (n = 61)
  - DEX implant–first combination (DEX implant + anti-VEGF; n = 53)
  - Branded anti-VEGF monotherapy (n = 1914)
  - Anti-VEGF–first combination (ranibizumab/aflibercept/bevacizumab + anti-VEGF or steroid; n = 484)
  - Bevacizumab monotherapy (n = 2316)
  - Bevacizumab–first combination (bevacizumab + branded anti-VEGF; n = 607)
- Demographic and clinical characteristics of the index treatment groups are summarized below

Patients’ Demographic and Clinical Characteristics by Index Treatment Group

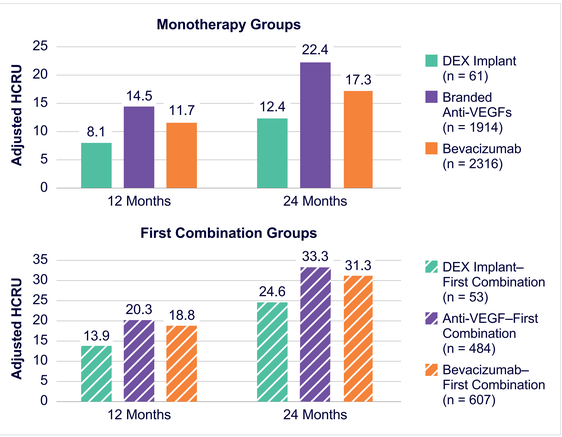
	Index Treatment		
	DEX Implant (n = 158)	Branded Anti-VEGF (n = 2688)	Unbranded Anti-VEGF (n = 4189)
Age at index date, years			
Mean	62.7	60.3	57.4
Sex, n (%)			
Male	73 (46.2)	1307 (48.6)	2111 (50.4)
Race, n (%)[a]			
White	30 (35.7)	429 (48.5)	640 (42.7)
Black	41 (48.8)	358 (40.5)	663 (44.2)
Hispanic	2 (2.4)	36 (4.1)	65 (4.3)
Other	11 (13.1)	61 (6.9)	131 (8.7)
Payer type, n (%)			
Commercial	46 (29.1)	1272 (47.3)	2148 (51.3)
Medicaid	88 (55.7)	927 (34.5)	1604 (38.3)
Medicare	24 (15.2)	489 (18.2)	437 (10.4)
Charlson Comorbidity Index			
Mean (range)	4.6 (0–11)	4.5 (0–14)	4.4 (0–17)

[a]Data available for Medicaid database only

HCRU

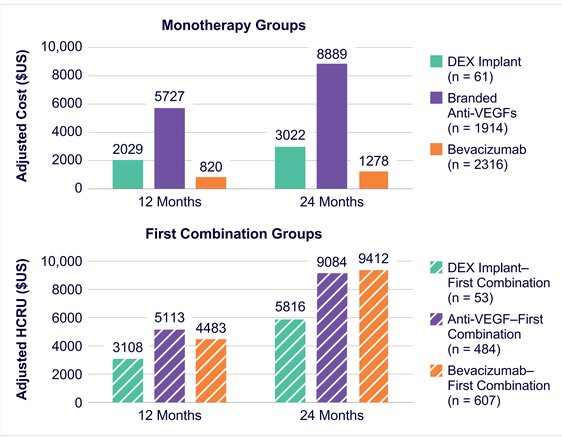
- Adjusted mean (95% CI) HCRU over the first 12 months post-index was significantly lower in patients on DEX implant monotherapy versus branded anti-VEGF monotherapy (8.1 [6.6, 9.8] vs 14.5 [13.2, 15.9] claims per patient), and in patients receiving DEX implant–first combination therapy versus anti-VEGF–first combination therapy (13.9 [11.5, 16.8] vs 20.3 [18.2, 22.5] claims per patient)

Comparison of Mean HCRU Over the First 12 and 24 Months Between Post-Index Treatment Cohorts



Health care resource utilization (HCRU) sums physician office visit, imaging, procedure, and indication medication claims, but excludes injections (to avoid double-counting)

Comparison of Mean Treatment Costs Over the First 12 and 24 Months Between Post-Index Treatment Cohorts



Treatment costs were adjusted for differences between treatment groups in baseline characteristics (sex, age, payer, plan type, baseline net costs, baseline Charlson Comorbidity Index, and the presence/absence of dyslipidemia, hypertension, ocular hypertension, glaucoma, nonproliferative diabetic retinopathy, exudative age-related macular degeneration [AMD], and non-exudative AMD)

Estimated Mean HCRU Ratio Over Years 1 and 2 for Index Monotherapy and Index–First Combination

	Estimated Mean Ratio (95% CI)	
	Year 1	Year 2
Relative to branded anti-VEGF monotherapy		
DEX implant monotherapy	0.56 (0.47, 0.66)	0.56 (0.46, 0.66)
Bevacizumab monotherapy	0.80 (0.77, 0.84)	0.77 (0.74, 0.80)
Relative to anti-VEGF–first combination therapy		
DEX implant–first combination therapy	0.69 (0.58, 0.81)	0.74 (0.62, 0.89)
Bevacizumab–first combination therapy	0.94 (0.88, 0.99)	0.94 (0.89, 1.00)

Branded anti-VEGF: ranibizumab and aflibercept; anti-VEGF: ranibizumab, aflibercept, and bevacizumab

- HCRU during the first 24 months post-index was ≈20–40% lower in patients on bevacizumab and DEX implant monotherapy compared with branded anti-VEGF monotherapy, and ≈30% lower in patients on DEX implant–first compared with anti-VEGF–first combination therapy

DME Treatment Costs

- Adjusted mean (95% CI) treatment costs for DME over the first 12 months post-index were significantly lower in patients on DEX implant monotherapy versus branded anti-VEGF monotherapy ($2029 [$1504, $2739] vs $5727 [$4891, $6707] per patient), and in patients receiving DEX implant–first versus anti-VEGF–first combination therapy ($3108 [$2276, $4244] vs $5113 [$4298, $6130] per patient)

Estimated Mean Treatment Cost Ratio Over Years 1 and 2 for Index Monotherapy and Index–First Combination

	Estimated Mean Ratio (95% CI)	
	Year 1	Year 2
Relative to branded anti-VEGF monotherapy		
DEX implant monotherapy	0.35 (0.27, 0.46)	0.34 (0.26, 0.44)
Bevacizumab monotherapy	0.14 (0.13, 0.15)	0.14 (0.14, 0.15)
Relative to anti-VEGF–first combination therapy		
DEX implant–first combination therapy	0.61 (0.30, 0.81)	0.64 (0.49, 0.84)
Bevacizumab–first combination therapy	0.87 (0.79, 0.96)	1.04 (0.95, 1.14)

Branded anti-VEGF: ranibizumab and aflibercept; anti-VEGF: ranibizumab, aflibercept, and bevacizumab

- Treatment costs during the first 24 months post-index were ≈60–90% lower in patients on bevacizumab and DEX implant monotherapy compared with branded anti-VEGF monotherapy. Treatment costs were similar for patients on bevacizumab–first and anti-VEGF–first combination therapy, but ≈40% lower for patients on DEX implant–first combination therapy

Study Limitations

- HCRU and cost comparisons may be influenced by unmeasured confounders; patients may have additional vision plans outside MarketScan; study findings may not extend to all patterns of DME management; and comorbidities may mask the HCRU and cost contributions of DME