Intravitreal Anti Vascular Endothelial Growth Factor Agents in the Management of Retinal Diseases: An Audit

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Introduction: Vascular endothelial growth factors (VEGF) is a key contributor in angiogenesis, promoting vascular endothelial cell proliferation[1]. It increases vascular permeability and vasodilation required in physiological processes like lesion healing, but is also responsible for many intraocular pathologies involving new vessel formation and inflammation resulting in irreversible vision loss[2,3]. These conditions include retinal disorders such as retinal vein occlusion(RVO), diabetic macula edema (DME), wet age related macular degeneration (AMD), myopic neovascularisation and retinopathy of prematurity. The complications of neovascularisation include neovascular glaucoma, vitreous haemorrhage and retinal detachment which cause visual impairment that arise from these conditions[3]. Anti-vascular endothelial growth factors (anti-VEGFs) have revolutionized the management of retinal diseases. Bevacizumab, Ranibizumab, and Aflibercept have shown significant gain in visual acuity [4]. Together or alone with other conventional treatment, retina specialists now have an armamentarium of antiVEGF agents in the treatment of ocular neovascular disorders. The uptake of these agents have increased in developing countries [5]. Cost and duration of treatment are however major drawbacks that affect compliance in a poor resource setting.

Methods: Case records of patients attending the retina clinic of the University of Port Harcourt Teaching Hospital between January 2012 to December 2016were reviewed. Data collected included patients' demographics, indications for injection, type of intra vitreal injection and risk factors. The Statistical Package for Social Sciences (SPSS) 20.0 was used for analysis. P values of <0.05 were considered statistically significant.

Results: Fifty-eight eyes of 50 patients were injected. A total of 190 injections were given, Bevacizumab,142 (74.74%) and Ranibizumab 48 (25.26%). Figure 1). Ninety- nine (52.11%) females received injections while 91 males (47.89%) with a mean age of 59.6± 11.66 years (Table 1). Retinal vein occlusion 61 (32.11%) was the commonest indication for the injections.

Discussion: The mean age in this series was 59.56± 11.66 years, with a slight female preponderance. Systemic conditions such as diabetes and hypertension which cause retinal microvascular pathologies have been reported in this age group[6,7]. A similar trend was seen in a Nigerian tertiary private eye care facilty. One hundred and ninety injections were given in this series, with Bevacizumab (142 injections, 74.74%) most frequently injected, while only 48 injections (25.26%) of Ranibizumab were given, see figure 1. Three eyes of 2 patients received both injections, switching from Bevacizumab to Ranibizumab because of financial constraints. Similar studies reckoned that the cheaper cost of bevacizumab explained its preference.[7,9] Retinal vein occlusion was the commonest indication for the use of antiVEGFs. Studies done in the same area reported a high incidence of RVO.[6] Hypertension as a strong risk factor was implicated in the two studies [6,79] Hypertension was the commonest systemic condition followed by diabetes, while cataract was the commonest ocular comorbidity. All the 61 (31.11%) cases with short term rise in intraocular pressures received bevacizumab. Floaters was the commonest complaint.

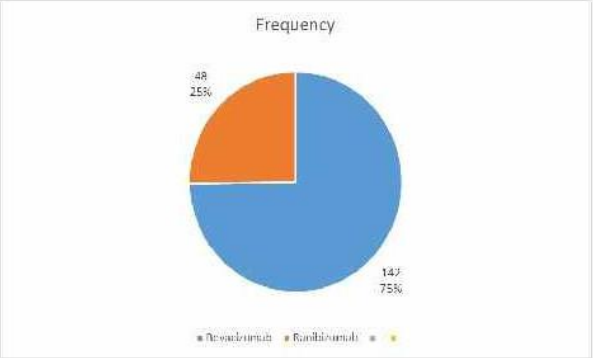

Fig. 1: Distribution of Types of Anti Vegf Injections

Conclusion: Anti- VEGFs are an invaluable tool in the management of retinal diseases in our center. The cost implication is a barrier to increased uptake. Cheaper alternatives preparations will increase the uptake.

Table 1: Clinical and demographics of patients

Characteristics	Frequency n=190	Percentage (%)
Age group		
30-39	3	1.58
40-49	30	15.79
50-59	63	33.16
60-69	64	33.68
70 and above	30	15.79
Mean	**59.56 ± 11.66**	
Sex		
Male	91	47.89
Female	99	52.11
TOTAL	**190**	**100**
Diagnosis		
Retinal vein occlusion	61	32.11
Diabetic macular edema	43	22.63
Proliferative diabetic retinopathy	42	22.11
Neovascular age related macular degeneration	26	13.68
Neovascular glaucoma	9	4.74
Myopic choroidal neovascularisation	3	1.58
Cystoid macular edema	3	1.58
Vitreous haemorrhage	3	1.58
TOTAL	**190**	**100**
Intraocular Pressure		
Normal	129	67.89
Raised	61	32.11
Complaints		
Floaters	40	21.05
Sub conjunctival hemorrhage	6	3.16
Ocular pains	24	12.63
Nil	120	63.16
TOTAL	**190**	**100**
Injection Site		
Supero temporal quadrant	131	68.95
Infero temporal quadrant	44	23.16
Supero nasal quadrant	15	7.89
TOTAL	**190**	**100**

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