Purpose

• Treat-and-extend treatment regimens are commonly used for the treatment of neovascular age-related macular degeneration.
• The safety and efficacy of this regimen relative to others for diabetic macular edema (DME) and macular edema (ME) secondary to retinal vein occlusion (RVO) remains poorly understood.
• This meta-analysis evaluates the comparative safety and efficacy of a treat-and-extend regimen relative to monthly and pro re nata (PRN) regimens using anti-vascular endothelial growth factor (VEGF) agents for DME and ME secondary to RVO.

Methods

• A systematic literature search was conducted on Ovid MEDLINE, EMBASE, and Cochrane Library from inception to December 2021.
• Comparative studies evaluating the efficacy and safety of a treat-and-extend regimen relative to monthly and pro re nata (PRN) regimens were included.
• Other treatment modalities, non-comparative studies, and non-English studies were excluded.
• Cochrane’s risk of bias tool 2 and ROBINS-I were used to assess risk of bias and GRADE evaluation was conducted to assess certainty of evidence.
• A random effects meta-analysis was conducted.

Results

• Seven studies of 984 eyes were included in this analysis.
• Relative to a monthly regimen, treat-and-extend was not significantly different for the change in BCVA from baseline to 12 months (p=0.74), 24 months (p=0.39), and final follow-up (p=0.59).
• There was a lower mean number of injections (WMD=-1.54, 95% CI=[-2.01, -1.06], p=0.00001) compared to a monthly regimen.
• Relative to a PRN regimen, treat-and-extend was not significantly different for final BCVA or change in BCVA from baseline to 12 months (p=0.15; p=0.85), 24 months (p=0.69; p=0.78) and final follow-up (p=0.34; p=0.84), and was associated with a higher mean number of injections (WMD=4.74, 95% CI=[0.83, 8.65], p=0.02).
• There was no difference for safety outcomes between treat-and-extend and monthly or PRN regimens.

Discussion

• This meta-analysis found that a treat-and-extend regimen was non-inferior to monthly and PRN treatment regimens in efficacy and safety endpoints for the management of DME or ME secondary to RVO.
• There was a significantly greater injection frequency of a treat-and-extend regimen relative to a PRN protocol, and significantly lesser injection frequency relative to a monthly regimen.
• Overall, there is a paucity of literature in this domain and further investigation is warranted.

Conflicts of Interest

N.P: None Declared, P.N: None Declared, A.D: None Declared, M.P: PSI Foundation, R.M: Bayer, Novartis, P.K: Bayer, Roche, Novartis, ArcticDx