Vascular Endothelial Growth Factor Systemic Effect

- Lucentis does not suppress systemic VEGF levels
- Eylea and Avastin suppress systemic VEGF levels


Vascular Endothelial Growth Factor Systemic Effect

Endosomes of endothelial cells

- Bind to the Fc domain of IgG at pH 6.0-6.5
- Does not bind the Fc domain of IgG at pH 7.0-7.5
- Protected after uptake into endothelial cells via nonspecific endocytosis or fluid-phase pinocytosis
- IgG-FcRn complex is then transported back to the cell surface and disassociated at physiological pH, releasing the intact Fc-containing molecule back to the circulation
Endophthalmitis

- 1/5,000 risk
- Safer if given in operating room
- Streptococcus common (rare in OR)
- Precautions
  - Betadine drops
  - Lid speculum when needed
  - NO TALKING AT TIME OF SHOT
Systemic Adverse Events


IOP Elevation and Anti-VEGF

• Prevalence: 10 percent
• Mechanism:
  • Direct effect on trabecular meshwork or outflow
  • Repeated transient IOP rise with shots
  • Chronic inflammation
  • Silicone oil
  • Clogging of TM by Agents or impurities

Tseng JJ et al. Sustained increased intraocular pressure related to intravitreal antivascular endothelial growth factor therapy for neovascular age-related macular degeneration. J Glaucoma. 2012 Apr-May;21(4):241-7
Pain and Anesthesia

- Patients prefer subconjunctival anesthetic
  - Within patient study 57 patients
  - One eye SC one eye topical
  - 50/57 prefer SC (p=0.003)
  - Prior studies did not give time for SC anesthesia to work

Geographic Atrophy and Anti-VEGF CATT Study

N=1092 patient without GA at baseline
10% GA at year 1; 18% at year 2
17% Foveal GA; 83% Extrafoveal GA

Significant risk multivariant analysis

**Less risk GA**
- Good Baseline VA
- Subretinal Fluid
- Subretinal Material
- Blocked fluorescence
- FA
- Vitreoretinal attachment
- Avastin therapy
- PRN therapy

**More risk GA**
- RAP lesion
- GA in fellow eye
- Intraretinal fluid
- Lucentis therapy
- Monthly therapy

Geographic Atrophy and Anti-VEGF
Anti-VEGF 3 years of therapy every 4-8 weeks
Summary

- Anti-VEGF’s Work!!
  - Wet AMD
  - Retinal Vein Occlusion
  - Diabetic Macular Edema
- Dosing
  - Monthly dosing is optimal
  - PRN dosing is pretty good
  - Treat and extend is the most common strategy → Balances safety and efficacy
- Three drugs are clinically equivalent
- Eylea is strongest in vitro
- Lucentis has least systemic exposure