Reduced Incidence of Post-Injection Endophthalmitis with Pre-filled Syringes

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Purpose:
Acute endophthalmitis is a rare but feared risk after intravitreal injections. Sterile precautions are critical in reducing this risk and the purpose of this study was to assess the features of post-injection endophthalmitis and assess whether pre-filled syringes prepared in a sterile fashion reduce endophthalmitis risk. Additionally, this study assessed whether physician versus technician drawing up drug into the syringe from the vial had an impact on endophthalmitis rates.

Methods:
Retrospective review of all intravitreal injections performed from 2014 through 2019 at all New Jersey Retina locations was performed identifying eyes developing endophthalmitis after intravitreal injection. Data including patient demographics, drug injected, time from procedure to presentation with symptoms, examination findings and culture results were collected.

Results:
A total of 325,902 injections were performed: 32,045 bevacizumab, 93,073 ranibizumab via sls, 77,925 ranibizumab pre-filled syringes, 122,947 aflibercept vials. The rate of endophthalmitis was 1 in 3704 injections (0.0270%) for all injections, 1 in 3204 injections (0.0312%) for bevacizumab, 1 in 4432 injections (0.0226%) for ranibizumab vials, 1 in 6494 injections (0.0154%) for ranibizumab pre-filled syringes, and 1 in 2732 injections (0.0154%) for aflibercept vials (p=0.03). When assessing only culture positive cases, the incidence of endophthalmitis was 1 in 9586 injections (0.0104%) for all injections, 1 in 10,682 injections (0.0094%) for bevacizumab, 1 in 15,512 injections (0.0064%) for ranibizumab vials, 1 in 38,962 injections (0.0026%) for ranibizumab pre-filled syringes, and 1 in 5344 injections (0.0187%) for aflibercept vials (p=0.003). A lower incidence of endophthalmitis was also found in offices where physicians, as opposed to nurses or technicians, drew up the medication from vials (p = 0.01).

Conclusions:
Endophthalmitis is the greatest risk factor associated with intravitreal injections and fortunately the incidence of this infection is low. However, a lower incidence of endophthalmitis was found for prefilled syringes and in offices where physicians, as opposed to nurses or technicians, drew up the medication. The use of prefilled syringes and increased caution while drawing up of drug from vials may lower the incidence of endophthalmitis.