30G vs 33G Needles for intravitreal eye injections – which is best?

The use of different gauge needles for intraocular injections, such as those administered in the treatment of retinal diseases like age-related macular degeneration, diabetic retinopathy, or retinal vein occlusion, carries specific advantages and considerations. Comparing a 33-gauge (33G) needle with a 30-gauge (30G) needle involves understanding the implications on patient comfort, precision of the injection, and potential complications.

33-Gauge Needle Advantages:

1. Reduced Pain and Discomfort: The smaller diameter of a 33G needle is likely to cause less pain and discomfort to the patient during the injection. This can be particularly beneficial in patients who require frequent injections, improving patient compliance and experience.

2. Lesser Trauma to Ocular Tissues: A finer needle may reduce the mechanical trauma to the conjunctiva, sclera, and deeper ocular tissues. This can potentially lower the risk of bleeding, inflammation, and other injection-related complications.

3. Decreased Risk of Bleeding: The smaller puncture site made by a 33G needle might lead to a reduced risk of subconjunctival hemorrhage, which is a common but generally benign side effect of intraocular injections.

4. Precision in Injection: Finer needles can offer greater precision, which might be advantageous in delicate procedures.

5. I have been using 33G from zero residual (https://sjjsolutions.com). They provide a range of products to support intravitreal injections to the eye. Including silicone free syringes and an ingenious device for removing bubbles in solutions that come in bottles vs pre filled syringes.

However another important milestone for me is the use of their 33G needle.

30G – 0.3mm diameter, 31g 2.60mm and 33G is 0.2mm diameter

Having used these needles now on 20 patients I can confirm that there is less pressure needed to penetrate the sclera. This is most noticeable and makes the injection a pleasure to administer. Orientating the needle in the correct orientation to penetrate the sclera is important as ever and I use loops or head lamp magnifier. It is more difficult with the smaller needle to see the tip.

There is noticeable less tendency for bleeding.

Patients report less discomfort (anecdotal feedback)

I am able to pass all the types of anti VEGF through the needle including Faricimab which is more viscous than Bevacizumab. It does though take a little longer but this is not of concern.

30-Gauge Needle Advantages:

1. Easier Drug Delivery: Larger needles like the 30G may facilitate easier injection of medications, especially those with higher viscosities. Some medications may require more force for injection if used with a finer needle, like a 33G.

2. Reduced Needle Deflection: Thicker needles are less likely to bend or deflect during the injection process, which can be important for accuracy, particularly in eyes with tougher scleral or conjunctival tissue.

3. Durability and Handling: A 30G needle might offer more robust handling, reducing the risk of needle breakage or bending, especially in less than ideal conditions.

Considerations:

- Injection Technique: The skill and technique of the injector play a significant role in minimizing complications and ensuring the efficacy of the treatment, regardless of needle gauge.

- Individual Patient Factors: The choice of needle gauge might also depend on individual patient factors, such as scleral thickness and the presence of scar tissue from previous injections.

- Medication Properties: The type of medication being injected (e.g., anti-VEGF, corticosteroids) can influence the choice of needle gauge.

- Evidence-Based Practice: While smaller gauge needles might offer advantages in terms of patient comfort and reduced trauma, it is important to base clinical decisions on the latest evidence and best practices in ophthalmology.

In conclusion, while a 33G needle may offer benefits in terms of reduced pain and tissue trauma, the choice between a 33G and a 30G needle should be made based on the specific medication, patient factors, and clinical situation. Ophthalmologists typically make this decision based on their clinical judgment, the characteristics of the medication being injected, and patient preferences. As in all medical procedures, individualized care is key.

For myself 33G needle now is my preferred choice.

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