

Comparison between 32 versus 30 Gauges needles used for intra vitreal injection

C. Van Went, V. Le Tien, P. Athis², G. Mimoun, N. Leveziel, V. Parier, M. Voigt, P. Haymann-Gawrilow, F. Coscas, G. Coscas, G. Soubrane, E. Souied.

1 Creteil University Eye Clinic, Paris XII, France 40, avenue de Verdun Créteil 94100 France with ophthalmology nurses of retinal departments
2 Laboratoire de Biostatistique et Informatique médicale, University hospital, 21079 Dijon cedex France.



Purpose

Intra-vitreous injections of antiangiogenic agents are actually the first therapeutic option for subfoveal choroidal neovascularization in Age-related Macular Degeneration (AMD). Thus the number of intra-vitreous injections (IVT) has recently significantly increased but the technique remains uncomfortable. The purpose of this study is to compare two types of needles (30 Gauge vs 32 Gauge). Main outcomes were : reflux, pain, injection resistance.

Methods:

This prospective non randomized study included two groups of 100 patients (1:1) with subfoveal choroidal neovascularisation related to AMD and treated by IVT of ranibizumab in November 2007.

Study criterias were:

- Pain immediately after the injection , evaluated on a 11 points scale graded from 0 (no pain) to 10 (maximal pain),.
- Resistance during injection, graduated from 0 to 5.
- Reflux, graded from 0 to 5.

All the patients received antibiotics collyrium during three days before and four days after injection. A surgical disinfection with betadin and topic anesthesia was made day of injection.

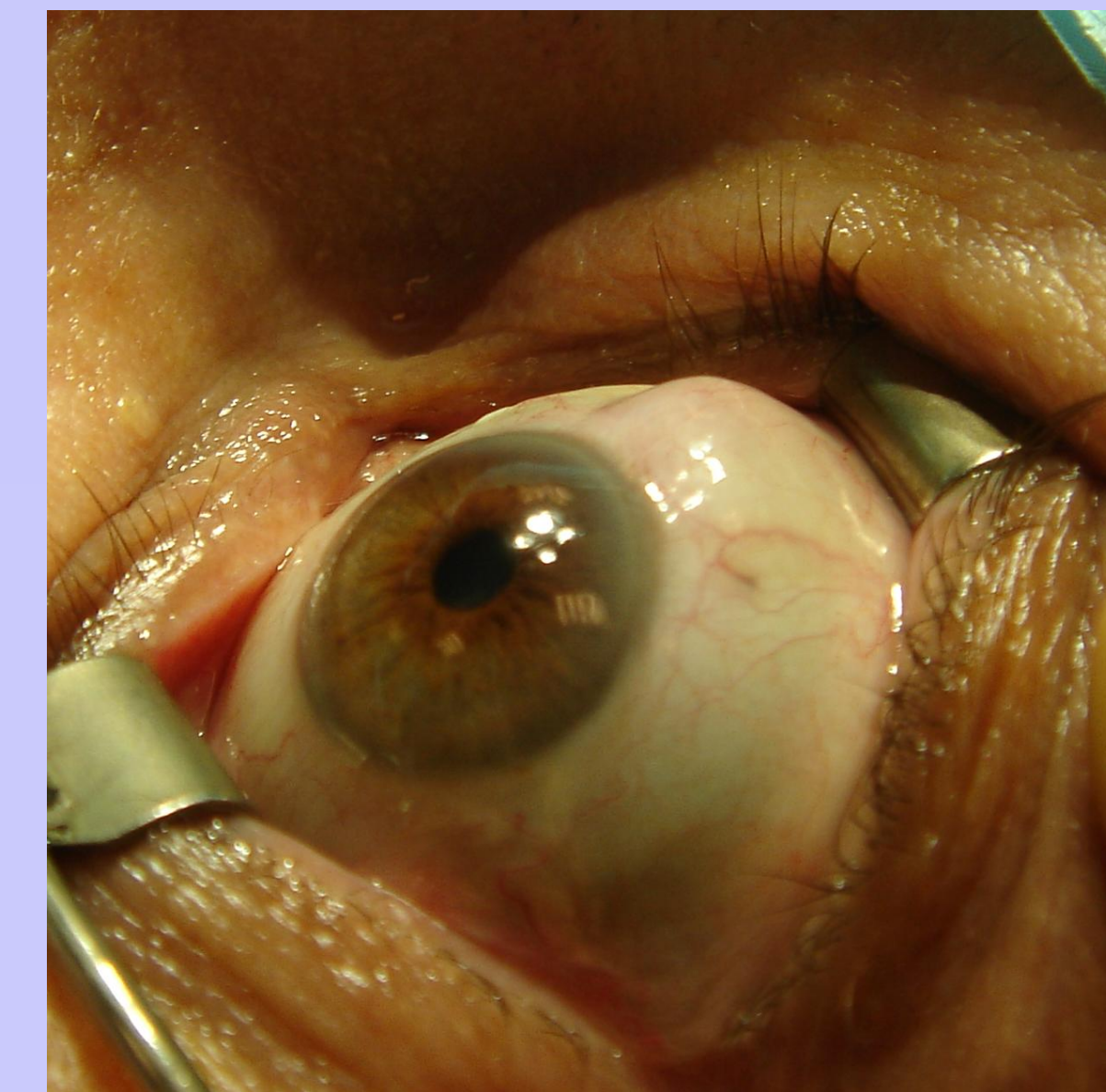
Pain grading were gathered by our nurse team.

Results:

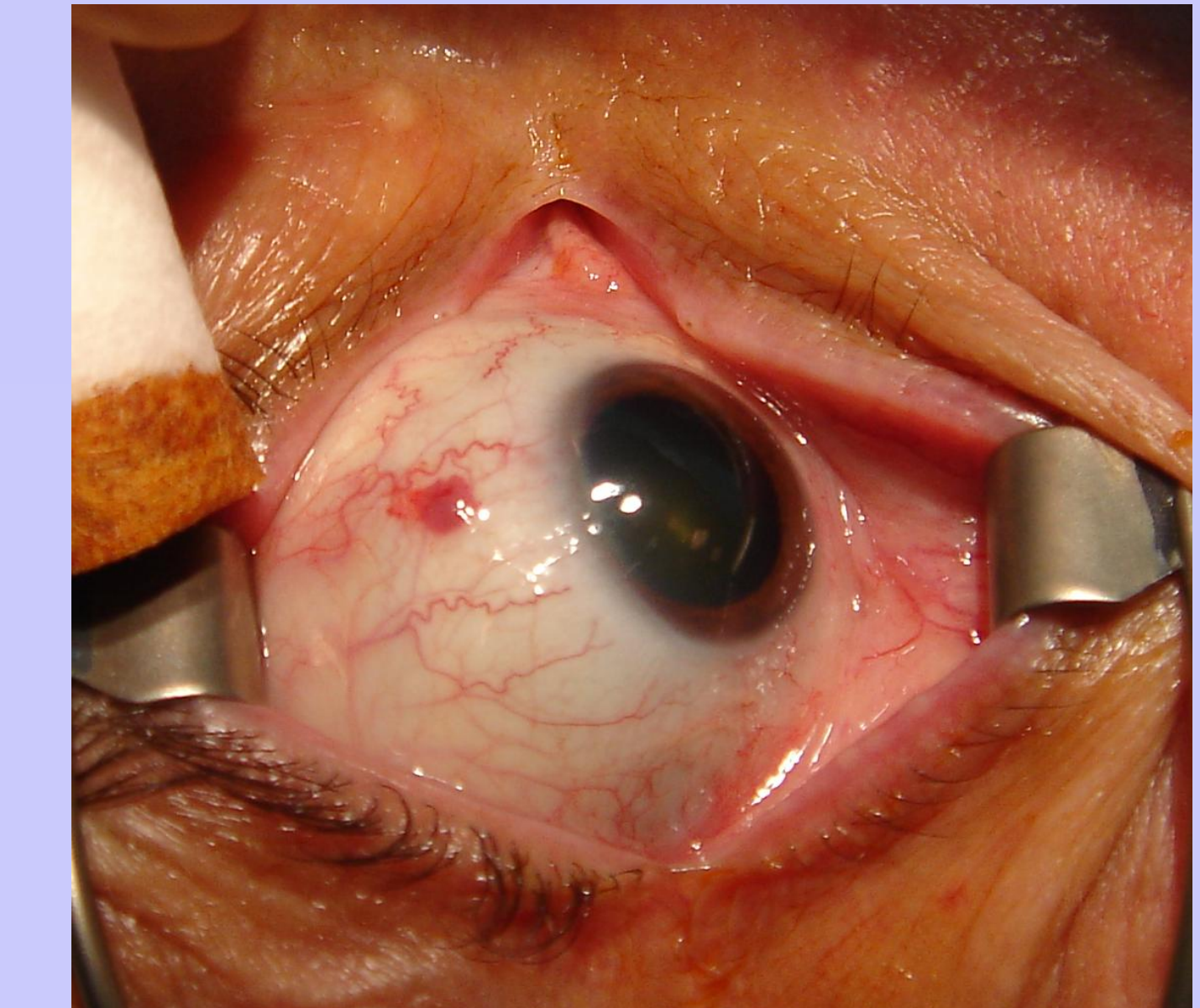
Groups appear similar as mean age was 77.33 years and sex ratio was 0.60 in the 30 G group versus 77.73 years and 0.59 in the 32 G group.

Statistical analysis was made using Chi² Fisher test.

	Group 30 G n=100	Group 32 G n=100	Fisher's exact test
Painless (0)	43	39	
Tolerable pain (1 to 3)	51	54	
Mean pain (0 à 10)	1.30	1.25	p = 0.857
Injection resistance (0 to 5)	0.07	0.30	p = 0.002
Reflux (0 à 5)	0.61	0.32	p =0.002



Example of reflux bleb coted 5



Conjunctival haemorrhage

Discussion

This study showed up **stastistically less reflux with 32 gauges needle**.

Technical progress could help us to find ideal needle to improve drug administration way during intra-vitreous injection. It could be interested to have less reflux for many reasons:

- **Drug loss** considering the small volume administered may result in a significant part of the dose beeing lost due to the reflux and consequent sub conjunctival bleb formation.
- **Side effects** could be also increased by systemic drainage.
- Theoretically **less infection risk**.

Actually the 30 gauges needle is the most common, while the largest needles (27 G ou 28 G) are rarely used. In this study we used a needle with smaller diameter. Others authors tried an oblique injection with less reflux (1).

No technical problem was related but the **resistance during the injection was significantly more important** with the 32 G needle.

Pain evaluation was quite moderate and **similar** in two groups considering subjective evaluation in stress condition and quickness of injection.

About infection risk any study in the literature made relation between needle diameter and endophtalmitis. It could be theoretically attractive to use a smaller needle for infection risk.

CONCLUSIONS

Reflux is stastistically less frequent with 32 G needle

This study does not show a significant difference for pain criteria between the two groups.

Resistance during injection was significantly more important with the 32 G needle but no technical problem was related.

Reference:

Reduction of pegptanib loss during intravitreal delivery using an oblique injection technique L. Iopez-Guajardo, FG del Valle, JP Moreno and MA MARINA ANCHOR PIER