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IOLs Design and Material influence in ND: Yag laser rates for a large series of MICS IOL implantations

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Disclosure for Gilles Lesieur

In compliance with COI policy, ESCRS requires the following disclosures to the session audience:

Shareholder	No relevant conflicts of interest to declare.
Grant / Research Support	No relevant conflicts of interest to declare.
Consultant	Carl Zeiss Meditec
Employee	No relevant conflicts of interest to declare.
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Paul Dupeyre has no financial interest in any of the mentioned products or methods

Purpose

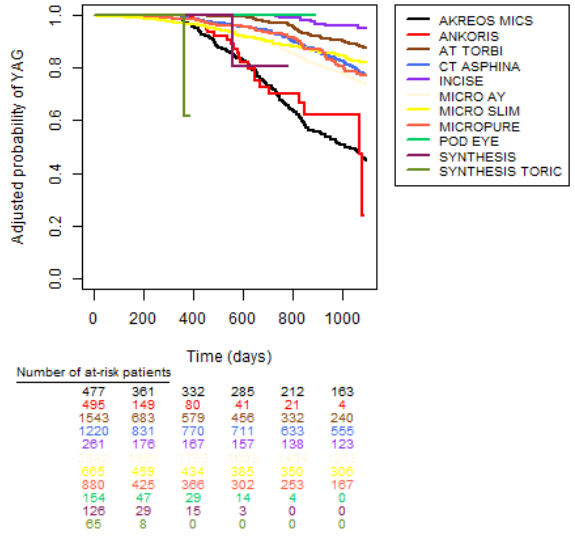
To analyze the rate of posterior Nd: YAG laser capsulotomy after **8735** implantations of **9 hydrophilic** acrylic IOLs and **2 hydrophobic*** IOLs of different design.

Kaplan-Meier survival analysis and propensity score were performed on all data.

Group (Nb IOL)	2 years	3 years	5 years	10 years
Akreos MICS (477)	71,47%	44,59%	**24,67%**	**13,60%**
CT Asphina (1220)	92,68%	77,07%	49,32%	**30,16%**
Micro Ay (2845)	88,58%	73,77%	57,59%	50,92%
Micro Slim (665)	89,04%	81,76%	71,64%	**61,45%**
Incise (261)	100%	94,88%	**89,50%**	
MicroPure* (880)	93,02%	76,98%	**38,25%**	
AT Torbi (1547)	96,85%	87,30%	68,19%	
Ankoris (495)	**70,07%**	**23,90%**		
PodEye* (154)	100%	**100%**		
Synthesis (126)	80,32%			
Synthesis Toric (65)	**61,76%**			

Results at 3 / 5 / 10 years for all IOLs

Adjusted Kaplan-Meier estimate of YAG at 3 years

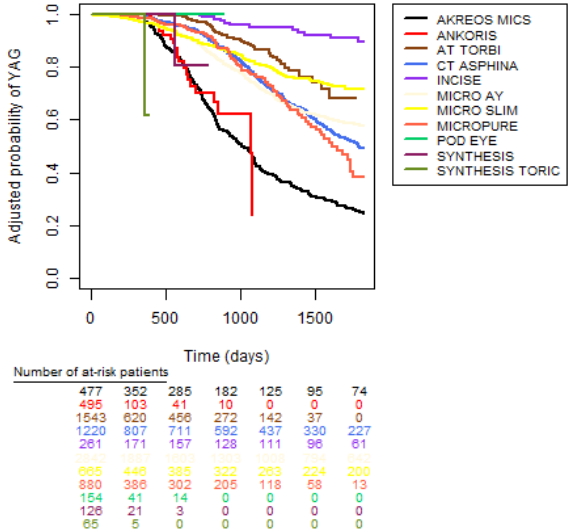


Number of at-risk patients

477	361	332	285	212	163
495	149	80	41	21	4
1543	683	579	456	332	240
1220	831	770	711	633	555
261	176	167	157	138	123
665	459	434	385	350	306
880	425	366	302	253	167
154	47	29	14	4	0
126	29	15	3	0	0
65	8	0	0	0	0

At 3 years, survival rates dropped significantly for Akreos and Ankoris, 44.59% and 23.90% respectively. The gap between CT Asphina (77.07%) and AT Torbi (87.30%) continues to increase.

Adjusted Kaplan-Meier estimate of YAG at 5 years

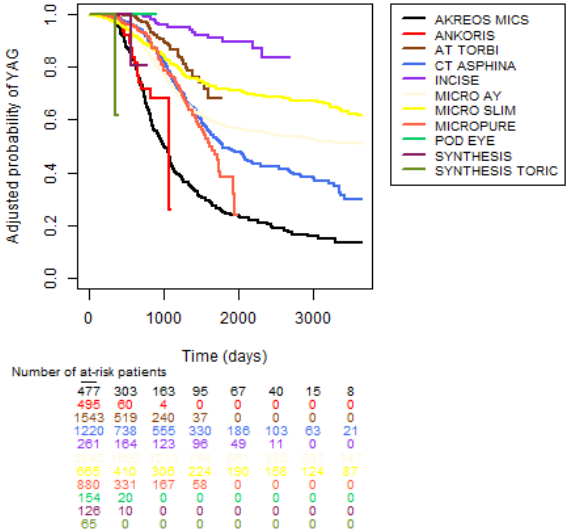


Number of at-risk patients

477	352	285	182	125	95	74
495	103	41	10	0	0	0
1543	620	456	272	142	37	0
1220	807	711	592	437	330	227
261	171	157	128	111	96	61
665	446	385	322	263	224	200
880	386	302	205	118	58	13
154	41	14	0	0	0	0
126	21	3	0	0	0	0
65	5	0	0	0	0	0

At 5 years, the survival rate of MicroPure (hydrophobic) sharply decreased to 38.25%. The CT Asphina, Micro AY and Akreos were also significantly reduced with survival rates of 49.32%, 57.59%, 24.67%, respectively. Incise still had a very high survival rate with 89.50%.

Adjusted Kaplan-Meier estimate of YAG at 10 years



Number of at-risk patients

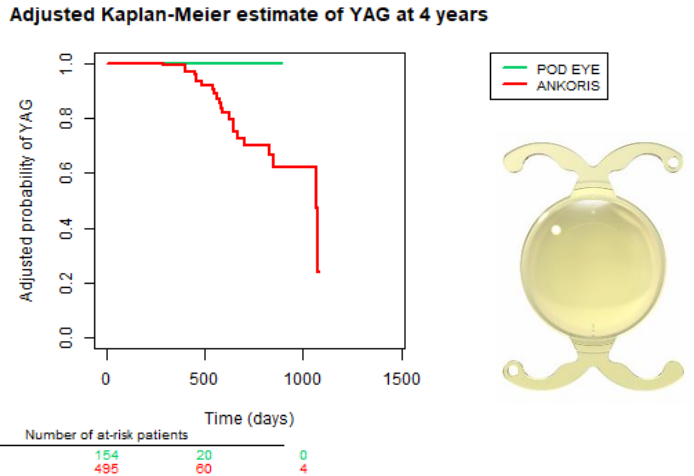
477	303	163	95	67	40	15	8
495	60	4	0	0	0	0	0
1543	519	240	37	0	0	0	0
1220	738	555	330	186	103	63	21
261	164	123	96	49	11	0	0
665	410	306	224	190	158	124	87
880	331	167	58	0	0	0	0
154	20	0	0	0	0	0	0
126	10	0	0	0	0	0	0
65	0	0	0	0	0	0	0

At 10 years, the survival rate of MicroPure (hydrophobic) sharply decreased to 38.25%. The CT Asphina, Micro AY and Akreos were also significantly reduced with 49.32%, 57.59%, 24.67%, respectively. Incise still had a very high survival rate (89.50%)

Results for same design IOLs and different material

PodEye (Hydrophobic) / Ankoris (Hydrophilic)

The hydrophobic material could be the reason for better results in PCO



MicroPure / MicroSlim / Micro AY

However for this same design, the hydrophobic MicroPure showed worse survival rate at 5 years (40.27%) compared to hydrophilic MicroSlim (71.21%) and Micro AY (56.94%)

Conclusion

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The Akreos MICS shows the **highest rate of YAG**, possibly due to the optical design and polished edge

MicroSlim gives the best survival rate at 10 years probably due to the **manufacturing method** (turned at room temperature)

The comparison between the Ankoris and the PodEye could confirm the influence of the **hydrophobic material** in limiting PCO. Nevertheless, the comparison of MicroPure, MicroSlim, Micro AY showed a contrary conclusion

The shuttle design of the CT Asphina with square edges delays PCO, **but it increases after 3 years**
We don't have explanation for the difference in PCO between CT Asphina and AT Torbi

INCISE shows **positive results** in preventing the onset of PCO

It is essential to continue this study to analyze the tolerance and side effects **in the long term**