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The Effect of Antibiotic Use in Surgery on the Incidence of Postsurgical Cataract Endophthalmitis

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Abstract **Original Research Article**

Endophthalmitis is a rare complication that can occur either endogenous or exogenous. Postsurgical endophthalmitis remains the primary exogenous etiology. Its complications remain formidable and involve the functional prognosis see anatomical eye. All interest of the question resides in preoperative prevention by incising on the measures of asepsis and antisepsis and per operatory by administering the antibiotic. Intracameral cefuroxime reduces the incidence of postoperative endophthalmitis of similar or slightly increased efficacy compared to the intravenous tract.

Keywords: Endophthalmitis, Intracameral cefuroxime, Bacteriological analysis.

INTRODUCTION

Endophthalmitis is the most feared complication of all ophthalmologist surgeons. Its incidence is estimated between 0.01 and 0.09% of cases of cataract surgery.

The 2006 ESCRS study showed a significant decrease in the risk of post-surgical cataract Endophthalmitis after intraoperative intracameral injection of cefuroxime.

We report cases of endophthalmitis after this type of eye surgery that occurred or was received between May 2019 and May 2022 in the ophthalmology department of the Provincial hospital of Khenifra.

DISCUSSION

Materials and Methods

This is a retrospective study conducted over four years, analyzing the medical records of consecutive patients operated on phacoemulsification alone, extracapsular extraction alone, or combined with vitrectomy. Specific surgical practices were collected from each surgeon.

We particularly analyzed:

The patient's medical history. The operating characteristics, Peri- or per-operative antibiotic administrations, Visual acuities, Biomicroscopic examination data and, The microbiological results.

RESULTS

We collected 20 eyes from 20 patients: 12 straight eyes and 8 left eyes, 12 men and 8 women, aged 40-84 (average=62 years).

Cases of endophthalmitis were consecutive to 6 phacoemulsification alone, 10 extracapsular extractions 2 combined with vitrectomy for intravitreal hemorrhage, and 2 combined with silicone oil removal. The average time after surgery was 6.2 days (1 to 18 days).

Bacteriological analysis allowed the identification of the germ responsible in 10 cases where it was a gram positive Cocci (staphylococcus in 7 cases and streptococcus in 3 cases), in 4 cases of gram negative (pseudomonas in 2 cases, Proteus in 2 cases) and in 2 cases with mycosis (candida). The average follow-up was 15.5 weeks (1 to 30 weeks).

Patients	Gender	Age (years)	surgery	side	IVT date	delay/surgery	TBA	Prior VA	Follow-up (weeks)
1	M	80	PKE	OD	07/05/19	4 DAYS	NO	5/10	10
2	F	47	PKE+AHS	OD	23/05/19	18 DAYS	NO	3/10	25
3	M	68	PKE+IVT	OS	05/06/20	10 DAYS	NO	6/10	9
4	M	68	PKE+IVT	OD	19/05/21	20 DAYS	NO	5/10	22
5	M	63	PKE	OS	06/06/22	12 DAYS	NO	5/10	14
6	F	71	PKE+AHS	OD	28/05/19	17 DAYS	NO	5/10	08
7	F	54	PEEC	OD	28/05/20	02 DAYS	NO	4/10	15
8	M	62	PKE	OS	04/06/21	03 DAYS	NO	4/10	18
9	M	73	PEEC	OS	16/06/22	16 DAYS	NO	5/10	11
10	F	64	PEEC	OS	18/06/19	12 DAYS	NO	4/10	03
11	M	57	PKE	OD	09/04/21	19 DAYS	YES	2/10	13
12	F	84	PKE	OD	02/05/22	02 DAYS	YES	5/10	25
13	M	67	PEEC	OS	31/05/20	06 DAYS	YES	3/10	06
14	M	71	PEEC	OD	13/06/20	06 DAYS	YES	4/10	05
15	F	60	PKE	OD	24/06/19	17 DAYS	YES	5/10	02
16	M	40	PEEC	OS	10/06/21	10 DAYS	NON	2/10	08
17	F	75	PEEC	OD	16/05/19	08 DAYS		3/10	10
18	M	58	PEEC	OS	19/07/22	05 DAYS		4/10	14
19	M	42	PEEC	OD	25/12/19	15 DAYS		4/10	09
20	F	63	PEEC	OD	04/10/21	20 DAYS		3/10	11

14 patients received no per-operative antibiotic therapy, 3 patients received an intracameral injection of ceftazidime and 3 patients received an intravenous injection of ofloxacin.

The final visual acuity (VA) was lower than the initial for 10 cases, ranging from light perception to 2/10 with 2 cases of anatomical loss of the eye.

The VA remained stable for 4 cases and finally improved in 4 cases.

Patient	VA Final course of treatment
1	CLD at 1m
2	3/10
3	2/10
4	1/10
5	5/10
6	6/10
7	2/10
8	2/10
9	5/10
10	3/10
11	Pl negative
12	6/10
13	1/10
14	4/10
15	3/10
16	CLD a t 2m
17	5/10
18	5/10
19	CLD a 2m
20	PL negative

The following table shows the total number of patients operated on over the 4-year period (1200) with those who had endophthalmitis who had received either per-operative or non-operative antibiotic therapy.

	Endophthalmitis +	Endophthalmitis -	TOTAL
ATB-	14	750	14/750 (1,8%)
ATB+	6	430	6 /430(1.3%)
TOTAL	20	1180	1200

DISCUSSION

Our study was carried out over the 4 years receiving the most endophthalmitis in the year hence the interest to study the effect of preventive antibiotic therapy on its occurrence.

Patients who received per-operative cefuroxime had less endophthalmitis in post-operative with a rate of 1.3% than patients who received nothing at 1.8%

Since the ESCRS report recommends the intracameral injection of cefuroxime at the end of phacoemulsification intervention, the systematization of this practice has expanded. It remains debated.

Statistical analysis of the different variables with the SPSS software shows that the per-operative antibiotic therapy does not completely protect from the risk of endophthalmitis.

However, it appears that patients who received preventive antibiotic therapy had a lower consequence endophthalmitis.

CONCLUSION

The systematic practice of an intracameral injection of cefuroxime at the end of phacoemulsification is discussed.

This analysis shows that per-operative antibioprophylaxis neither systemic nor local intracameral does not provide absolute protection against endophthalmitis.

It does not worsen the prognosis of infection and even improves it in our series.

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