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Epidemiology of acute endophthalmitis after intraocular procedures: a national database study

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Abbreviations and acronyms:

CI = confidence interval; **IVT** = intravitreal injection.

Running head: Endophthalmitis trend after intraocular procedures

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Abstract

Objective: To describe the causes of postoperative acute endophthalmitis at a national scale longitudinally.

Design: Cohort study from 2009 to 2018 in France.

Participants: Patients diagnosed with acute endophthalmitis following intraocular procedures.

Methods: The French Medical-Administrative Database was used, endophthalmitis cases and intraocular procedures were identified by means of billing codes in all French hospitals and private practices.

Main Outcomes and Measures: Incidence of acute endophthalmitis within 42 days of the procedure.

Results: From January 1, 2009 to October 31, 2018, 7522 cases of acute endophthalmitis occurred following 14 438 854 intraocular procedures. Most cases occurred after standalone cataract surgery (4808 cases for 7 316 077 procedures, 63.92%), followed by IVTs (1 296 cases for 5 455 631 IVTs, 17.23%), vitreoretinal surgery (698 for 442 263 procedures, 9.28%), anterior segment surgery (245 cases, 3.26%), combined cataract and vitreoretinal surgery (191 cases, 2.54%), cornea surgery (142 cases, 1.89%), and glaucoma surgery (80 cases, 1.06%). The overall incidence of acute endophthalmitis was 1 per 1920 procedures (0.0521% procedures, 95% CI, 0.0520–0.0522). The surgeries with the highest incidence of endophthalmitis were the scleral and globe surgery group, 0.1827% (95% CI, 0.1757–0.1898), followed by

vitreoretinal surgery combined with cataract surgery, 0.1685% (95% CI, 0.1663–0.1706). The incidence of endophthalmitis after IVTs was stable over the study-period and patients were the oldest, 75.4 years (SD±12.0), $P < 0.001$. The onset of endophthalmitis following intravitreal procedures, after IVTs and vitreoretinal surgery, was shorter than for other procedures ($P < 0.001$).

Conclusions: The profile of patients referred for acute endophthalmitis has been evolving over a decade, with a decrease in the raw number of endophthalmitis cases after cataract surgery as opposed to an increase in the number of patients presenting with endophthalmitis after IVTs.

1 Introduction

2 Endophthalmitis is one of the most dreaded complications after intraocular procedures
3 and may lead to severe irreversible vision loss. Indeed, the visual consequences after
4 endophthalmitis are often severe, with approximately half of the patients having a final
5 visual acuity less than 20/40, and a third having less than 20/100.¹ Most cases of
6 endophthalmitis are exogenous, i.e., occurring after intraocular or surgical procedures or
7 intravitreal injections (IVTs), or they occur in connection with eye trauma or corneal
8 infection. Fortunately, the occurrence of this complication remains rare, its incidence
9 varying according to the type of procedure performed. Indeed, for cataract surgeries and
10 IVTs the incidence is approximately 0.1% and 0.05%, respectively.^{2, 3} In addition, some
11 authors have reported a change in the proportion of patients presenting with
12 endophthalmitis, i.e., more patients presenting for endophthalmitis after IVTs than
13 cataracts, related to an increase in the number of IVTs performed over the past 10
14 years.^{4, 5} For less frequently performed procedures, the reported incidence is more
15 variable, due to the small number of series.^{6, 7} Limitations in having an accurate estimate
16 of the overall incidence could be overcome by using data obtained from medico-
17 administrative databases,^{3, 8, 9} such as the French National Health Database (*Système*
18 *National des Données de Santé* [SNDS]), gathering surgical and medical procedures at
19 the national scale.^{10, 11} In France, acute endophthalmitis is an emergency always treated
20 in an inpatient unit, either private or public,⁹ as such the event is recorded in this
21 database. Knowledge of the incidence of endophthalmitis is essential for patient
22 education and for assessing the effectiveness of preventive measures. Furthermore,

23 evaluating endophthalmitis onset according to the type of procedure could lead to both
24 optimal postoperative timing for follow-up visits and optimal recommendations for the
25 patients. We sought to describe the causes of acute postprocedural endophthalmitis in
26 France from 2009 to 2018.

27 **Material and Methods**

28 **Data source**

29 The French National Health Information database (*Système National des Données de*
30 *Santé* [SNDS]) was used for this study. This is a medico-administrative database that
31 collects anonymous data on hospital discharge codes (International Classification of
32 Diseases, 10th Revision), office visits, procedures performed (French Common
33 Classification of Medical Acts, CCAM), and drug consumption for almost the entire
34 French population, i.e., more than 65 million inhabitants during the study period. The
35 study presented here is part of the French Epidemiology and Safety (EPISAFE)
36 collaborative program.¹¹ It was approved by the French Institute of Health Data
37 (registration number 115306, 01/24/2019) and by the French Data Protection Authority
38 (registration number D.R. 2019-100, 04/12/2019). This study adhered to the tenets of
39 the Declaration of Helsinki.

40 **Study design and setting**

41 The subset of data available for this study included all patients in the database who
42 underwent ocular surgery, identified by billing codes, from 2007 to 2018.

43 **Outcomes**

44 The event considered was the occurrence of acute endophthalmitis, as defined by the
45 Endophthalmitis Vitrectomy Study (EVS), in the 42 days following a procedure¹²
46 identified by the presence of a hospital discharge code of purulent endophthalmitis or of
47 other endophthalmitis (ICD10th H440 or H441). Only procedures performed between
48 January 1, 2009 and October 31, 2018 were considered for the occurrence of
49 endophthalmitis; previous procedures were used to verify the uniqueness of cause and
50 medical consumption since exact dates of hospitalization were not available for 2007
51 and 2008. It should be noted that for 2018, only 10 months out of 12 were taken into
52 account for raw data on the procedure and endophthalmitis cases. The standard in
53 France is to hospitalize all patients with endophthalmitis because of the severity of the
54 condition, the need for medical monitoring and IVT of antibiotics, and vitrectomy when
55 indicated. Intraocular procedures were identified based on their billing codes and
56 grouped according to the anatomical structure involved, considering combined surgeries
57 (see Appendix 1). The date of the procedure was defined as the index date if performed
58 within 42 days prior to infection.¹² We reviewed cases where a diagnosis of
59 endophthalmitis was made up to 42 days after several different procedures had been
60 performed on various dates with an interval of less than 7 days between procedures; in
61 these cases, the allocation decision was defined by an algorithm. The causes of
62 endophthalmitis were prioritized according to the highest probability of being responsible
63 for the case of endophthalmitis recorded. Vitreoretinal surgeries were given priority,
64 followed by filtering surgeries, lens surgery, corneal surgery, IVTs, and anterior segment
65 surgery. In addition, for cases where no procedure was recorded in the 42 days before
66 endophthalmitis, a complete review was made of the patients' hospitalization codes,

67 medical procedures, and long-term conditions, over the entire study period, accounting
68 for medical management outside ophthalmology. Demographic data such as age and
69 sex were extracted.

70 **Statistical analysis**

71 The annual incidence of endophthalmitis is expressed per 100 procedures per year with
72 95% confidence intervals. Comparisons were made using the chi-squared test for
73 categorical variables and the signed-rank test for continuous variables. Statistical
74 significance was set at $P < 0.05$ (two-tailed tests). All data processing and statistical
75 analyses were performed using the SAS statistical analysis software package (SAS
76 Enterprise Guide® version 7.1; SAS Institute, Inc., Cary, NC, USA).

77 **Results**

78 From January 1, 2009 to October 31, 2018, we recorded 7522 cases of acute
79 endophthalmitis following 14 438 854 intraocular procedures. The mean age at
80 diagnosis was 71.7 (SD±13.0) years, and 51.12% of the patients were female (see
81 Table 1 for descriptive statistics). Approximately two thirds of the cases of
82 endophthalmitis occurred after standalone cataract surgery (4808 cases for 7 316 077
83 procedures accounting for 63.92% of all endophthalmitis cases), and approximately one-
84 fifth occurred after IVTs (1296 cases for 5 455 631 IVTs, 17.23%). The next surgical
85 groups responsible for endophthalmitis were, in decreasing order of frequency,
86 vitreoretinal surgery (698 for 442 263 procedures, 9.28%), anterior segment surgery
87 (245 cases, 3.26%), combined cataract and vitreoretinal surgery (191 cases, 2.54%),
88 corneal surgery (142 cases, 1.89%), and glaucoma surgery (80 cases, 1.06%). The
89 number of cases by procedure and by year for the three main sources of
90 endophthalmitis is presented in Figure 1. While IVTs accounted for only 6.72% of
91 endophthalmitis cases in 2009, this figure rose to 30.75% in 2018. When all procedures
92 were considered, the incidence of endophthalmitis was 0.0521 cases per 100
93 procedures (1 in 1920; 95% CI, 0.0520–0.0522), as presented in Table 2. The highest
94 incidence of endophthalmitis was found in the scleral and globe surgery group, at
95 0.1827% (1 in 547; 95% CI, 0.1757–0.1898). The next procedures responsible for
96 endophthalmitis in descending order of incidence were: (i) vitreoretinal surgery
97 combined with cataract surgery, then as standalone surgery; (ii) anterior segment
98 surgery; (iii) filtering surgery combined with cataract surgery, then as standalone
99 surgery; (iv) cataract surgery; (v) IVTs; and (vi) corneal surgery.

100 Regarding the frequency of endophthalmitis cases per procedure per year, we
101 found an increase in endophthalmitis after IVTs during 2009–2018, from 61 to 210
102 annual cases, in conjunction with an increase in the number of IVTs performed over the
103 same period, from 188 330 to 822 491. The incidence of endophthalmitis was stable
104 over the study period (see Figure 2A). On the contrary, despite an increase in the
105 number of cataract surgeries during 2009–2018, from 584 188 to 727 454, the number
106 of endophthalmitis cases after this surgery decreased from 719 in 2009 to 357 in 2018.
107 For standalone vitreoretinal surgery, the third largest contributor of endophthalmitis
108 cases, a slight decrease in incidence was observed during the study period. A
109 fluctuation in the incidence of endophthalmitis over the years was observed for other
110 types of procedures (see Figure 2B), related to lower numbers of surgeries where
111 fluctuations in the number of cases of a rare event were more impactful, with, for
112 example, a fluctuation of 0.2069% for the extreme values of the scleral and globe
113 surgery group. Patients with acute endophthalmitis after IVTs were the oldest at 75.4
114 (SD±12.0) years, while the 21 patients with endophthalmitis after scleral and globe
115 surgery were the youngest at 52.0 (SD±19.0) years ($P < 0.001$) and there were only
116 males. Endophthalmitis following intravitreal procedures, i.e., after IVTs and vitreoretinal
117 surgery, occurred earlier than after other procedures, at a median of (interquartile range
118 [IQR]) 4.0 (3.0–7.0) days and 4.0 (2.0–8.0) days, respectively ($P < 0.001$). Onset of
119 acute endophthalmitis after standalone cataract surgery was 6.0 (4.0–11.0) days.

120 **Discussion**

121 The major finding of this study was the low incidence of endophthalmitis following
122 intraocular procedures, 0.0521 per 100 procedures, i.e., one case of endophthalmitis per
123 2000 procedures. This incidence of endophthalmitis was, however, dependent on the
124 type of procedure. First, we observed a decrease in the number of endophthalmitis
125 cases after cataract surgery, from 719 cases in 2009 to 469 in 2017, despite an increase
126 in the number of surgeries, from 584 188 surgeries to 847 320, which led to a decreased
127 incidence over the study period, particularly from 2008 to 2013. The increase in cataract
128 surgeries has also been observed in several other countries^{13, 14} and is expected to
129 rise.^{15, 16} Likewise, the decreased incidence of endophthalmitis has been observed in
130 many countries, and was reported in our previous study based on hospitalization data
131 only.⁹ Behndig et al. observed a decrease in incidence during the period 1998–2009,
132 using data from the Swedish National Cataract Register, although with a lower incidence
133 in 2009 than in our study (0.02% vs. 0.1231% for cataract surgery alone, respectively).¹⁴
134 However, the incidence observed in our study is in agreement with a Medicare study
135 conducted from 2003 to 2004, in which the incidence in 2004 was 0.111%.¹⁷ It is also in
136 line with the findings of the meta-analysis by Cao et al..¹⁸ The decrease in the incidence
137 of endophthalmitis after cataract surgery could be related to improved microsurgical and
138 asepsis techniques and the use of broad-spectrum intracameral antibiotics injected at
139 the end of the procedure. The steep drop in incidence that began in 2012 is concomitant
140 with the availability of a commercial preparation of cefuroxime, which has been
141 associated with a lower risk of acute postoperative endophthalmitis.^{9, 19, 20} The median

142 time to onset of endophthalmitis after cataract surgery of 6 days is consistent with a
143 previous report.¹²

144 The number of IVTs has increased dramatically over the past 10 years, in line
145 with an increase in indications and their effectiveness in maintaining visual acuity.²¹
146 Indeed, on the basis of health insurance data, we observed a significant increase in the
147 number of IVTs performed in France, from 188 330 in 2009 to 869 575 in 2017. In the
148 United States, the number of IVTs performed is estimated to have increased from 4
149 million in 2013 to almost 6 million in 2016.²² In France, the technique of asepsis has
150 remained virtually unchanged over the period under review, although recommendations
151 have been made to avoid topical antibiotics.²³ This probably explains the stable
152 incidence of endophthalmitis after IVTs during the study period. In fact, if the raw
153 number of cases of endophthalmitis has increased over the period, it was
154 proportionately less than the total number of injections performed. The emergence of
155 indications for corticosteroid IVTs, starting after 2011 in France, may have led to an
156 increased risk of endophthalmitis after IVTs, as previously described.^{3, 24} However, the
157 proportion of these indications is likely too small to observe an effect on the rate of
158 endophthalmitis. The incidence of endophthalmitis after IVTs of 0.0238% in France is in
159 agreement with the incidence reported in our previous study of the French health
160 insurance database from 2012 to 2015, 0.0245%,³ and with the incidence in England,
161 0.025%.²⁵ The median delay from IVT to endophthalmitis of 4 days is in line with other
162 published studies; Shah et al. found an average delay of 3.4 days,²⁶ Lyall et al., 5
163 days,²⁵ and Van der Beek et al., 4.2 days;²⁴ our study of 25 French centers found an
164 average delay of 4 days.²⁷

165 Over the study period, we observed a shift in the causes of endophthalmitis; this
166 was already observed in a tertiary center in Australia and in Israel, where the number of
167 endophthalmitis cases after IVT increased while the number after cataract surgery
168 decreased.

169 While there has been an increase in the number of vitreoretinal surgeries
170 performed worldwide^{8, 28} as well as in France—from 46 881 in 2009 to 64 500 in 2017 in
171 our cohort—the incidence of acute postoperative endophthalmitis remained stable; in
172 our study vitreoretinal surgery alone accounting for the third cause of endophthalmitis at
173 0.1578%. The high incidence found after combined surgery with cataract surgery is also
174 driven by vitreoretinal surgery. Despite a transition to sutureless vitreoretinal surgery, for
175 which a higher risk of endophthalmitis had been assumed, related to wound leakage and
176 migration of microorganisms from the ocular surface,^{6, 8, 29} the evolution toward surgery
177 with increasingly smaller gauge and tangential incisions³⁰ could explain the stable
178 incidence.³¹ Postoperative hypotony could also be responsible for leakage and expose
179 patients to an increased risk of endophthalmitis.³² Interestingly, the time to onset of
180 endophthalmitis after intravitreal procedures, i.e., after IVTs or vitreoretinal surgeries,
181 was similar, and the shortest, probably due to rapid bacterial penetration and the higher
182 incidence of oral flora bacteria, which tend to be more virulent and proliferate more
183 rapidly in the vitreous cavity.

184 We observed a small proportion of acute endophthalmitis after filtering surgery,
185 0.0737%. Moreover, these endophthalmitis were of later onset than for other surgeries
186 14.2 (SD±10.9) days. This low proportion and the longer delay remind us that there is a

187 significant proportion of delayed-onset endophthalmitis after 42 days.⁷ Indeed, the
188 average delay of endophthalmitis after filtering surgery is 4 years postoperatively.^{7, 33}

189 After corneal surgery, the incidence of endophthalmitis was the lowest at
190 0.0212% of procedures, and was stable over the study period. This incidence was lower
191 than that reported in the UK population by Chen et al. between 1999 and 2006, at
192 0.16%.³⁴ A possible explanation for this difference could be graft contamination in the
193 UK study, related to an infection at the time of death, longer time to preservation, and
194 lack of disinfection use, as discussed by the authors. In France, sepsis at the time of
195 death is a contraindication to corneal donation as are positive blood cultures. This
196 incidence was also lower than that reported in the United States, 0.2% for endothelial
197 keratoplasty (EK) and 0.7% for penetrating keratoplasty (PK).³⁵ There was a change in
198 the proportion of EK and PK during the period covered in our study, but this did not
199 seem to influence the incidence of endophthalmitis. The difference in incidence found
200 between the US study³⁵ and ours is most likely due to the fact that we only studied acute
201 endophthalmitis, i.e., occurring within 42 days, as defined by the EVS. Indeed, the onset
202 of endophthalmitis was more delayed than other procedures, 15.9 (SD±11.8) days.

203 Scleral and globe surgeries were responsible for a very low number of
204 endophthalmitis cases (21 over the study period), but had the highest incidence at
205 0.1827%. The fact that these procedures are often performed after trauma may explain
206 why they have a higher incidence related to bacterial contamination and why only men
207 were involved.^{36, 37}

208 We acknowledge several limitations to this study. First, the diagnosis of
209 postprocedural endophthalmitis was taken from the diagnostic codes of hospitalization,
210 irrespective of the bacteriological test results. However, it should be noted that in the
211 literature laboratory test confirmation is lacking in 40% of cases of post-IVT
212 endophthalmitis, as reported by Lyall.²⁵ The risk of an erroneous diagnosis of a sterile
213 inflammatory response cannot be fully excluded but it should be low, as the incidence of
214 endophthalmitis after IVT found in the present study is very close to a previous report in
215 France, considering 310,000 IVTs.²⁷ Globally this risk is low given the low incidence of
216 sterile endophthalmitis (0.012% after IVT).³⁸ Indeed, patients discharged from hospital
217 for sterile endophthalmitis are labeled with a code related to uveitis. Endophthalmitis
218 cases identified were checked for the type of care they received – medical visits,
219 procedures performed, hospitalizations for all causes, drug consumption – to limit the
220 risk of error. Second, the impact of changes in technique in the absence of changes to
221 the procedure code could not be studied and was only assumed for the periods of
222 interest based on changes in practice, for example, for pars plana vitrectomy. Similarly,
223 modifications in the antisepsis protocol could not be studied because they are not coded
224 in our national database. However, there were no notable changes in the antisepsis
225 protocols for IVTs and surgeries over the study period.^{9, 23} Third, we limited our primary
226 outcome measures to acute postoperative endophthalmitis, occurring 42 days after the
227 procedure, as defined by the EVS.¹² Fourth, in some situations, several procedures
228 were performed in the 42 days preceding the endophthalmitis and an algorithm was
229 used, prioritizing the procedure most likely responsible, if the interval between
230 procedures was less than 7 days. This decision rule was based on a review of the

231 literature on procedures with the highest to lowest incidence. This decision rule may
232 have artificially increased the incidence of the most high-risk procedures, such as
233 vitreoretinal and filtering surgeries, and decreased the incidence of the lowest-risk
234 procedures, such as IVTs and anterior segment surgeries. However, since this situation
235 is relatively rare regarding the number of endophthalmitis cases, and even more so
236 regarding the number of procedures, it had a limited impact on our results. Fifth, in this
237 report, due to some limitations of our current analysis tools, we could not include
238 informations regarding the class of intravitreal agents injected. However, a study taking
239 into account this granularity is ongoing. Sixth, conclusions drawn using big data should
240 always be interpreted with caution because of their limitations, as already pointed out in
241 the ophthalmology literature.³⁹

242 Among the strengths of this study is the collection of data on all health-care
243 consumption reimbursed by the French health insurance system, for which the quality
244 and completeness of the coding of procedures are evaluated locally by the medical
245 information departments of the institutions and at the national level by the paying
246 organization, and are deemed robust.^{40, 41} Moreover, this coding is a condition for the
247 remuneration of practitioners and institutions. Thanks to the wide range of information
248 provided by the database, patients' care pathways with endophthalmitis could be studied
249 extensively to limit misclassification. The use of a national population database
250 guarantees the exhaustive collection of data avoiding bias linked to selective centers.

251 In conclusion, endophthalmitis remains a rare event after intraocular procedures,
252 as observed in this study at a national scale over a decade.

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Tables and figures

Table 1. Demographics of Patients with Acute Endophthalmitis after Intraocular Procedures from 2009 to 2018 in France

Table 2. Incidence of Postoperative Acute Endophthalmitis after Intraocular Procedures from 2009 to 2018 in France

Figure 1. Endophthalmitis Cases by Year and by the Three Main Causes of Postoperative Acute Endophthalmitis in France

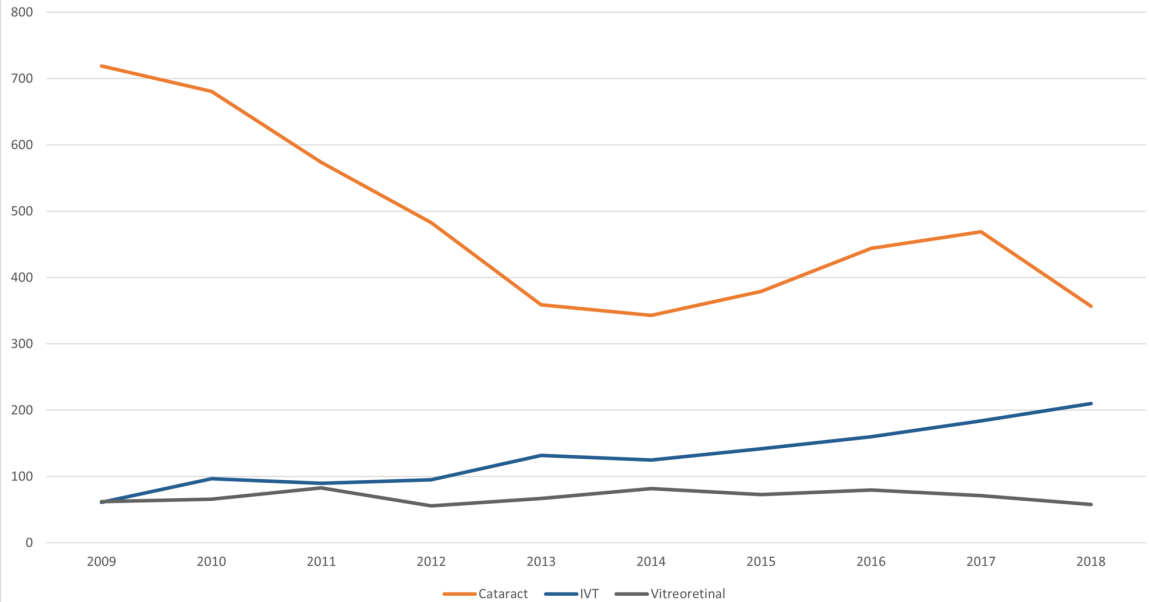
2018 is a truncated year, with the collection ending on October 31, 2018

Figure 2A and 2B. Postoperative Acute Endophthalmitis Incidence per Year per Procedure in France.

2A. Five Main Causes of Endophthalmitis.

2B. Four Other Causes of Endophthalmitis 2018 is a truncated year, with the collection ending on October 31, 2018

Endophthalmitis cases per year by causes



Endophthalmitis cases
for 100 procedures

2A. Incidence per Year for the Five Main Causes of Postoperative Acute Endophthalmitis

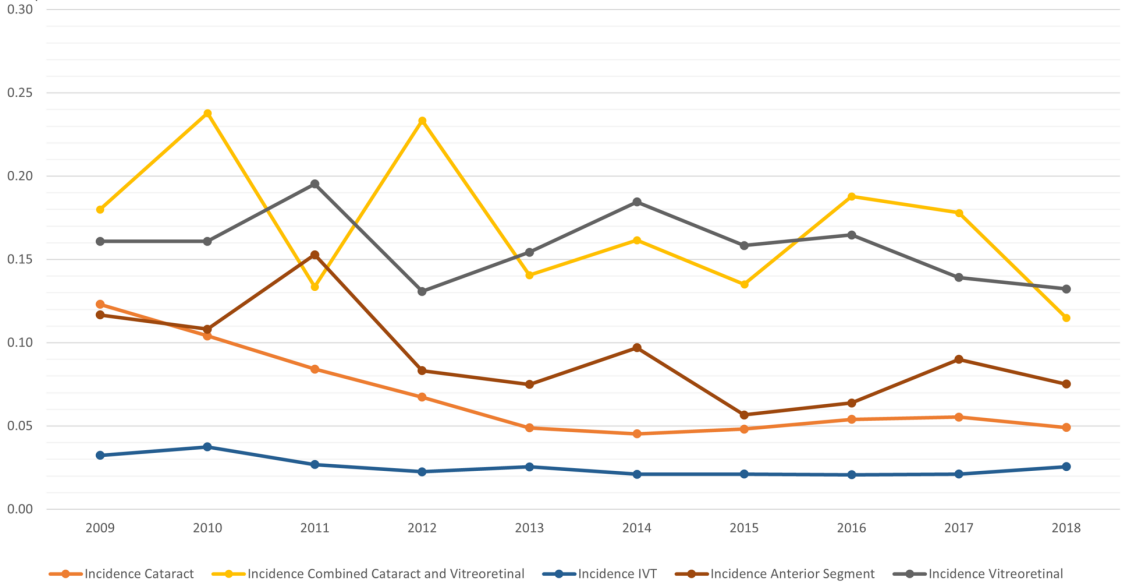


Table 1. Demographics of Patients with Acute Endophthalmitis after Intraocular Procedures from 2009 to 2018 in France

Procedures	Age, yrs (SD)	Sex, female (%)	Endophthalmitis onset, days		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 ^a	Total
			Mean (SD)	Median (IQR)											
Cataract surgery	72.6 (11.4)	50.2%	9.3 (8.7)	6.0 (4.0-11.0)	719	681	574	483	359	343	379	444	469	357	4 808
Intravitreal Injection	75.4 (12.0)	61.4%	6.8 (7.6)	4.0 (3.0-7.0)	61	97	90	95	132	125	142	160	184	210	1 296
Vitreoretinal surgery	66.0 (14.5)	47.6%	7.3 (8.4)	4.0 (2.0-8.0)	62	66	83	56	67	82	73	80	71	58	698
Anterior segment surgery	64.0 (18.7)	49.0%	12.9 (11.5)	8.0 (4.0-20.0)	23	25	37	18	19	29	18	22	32	22	245
Combined cataract and vitreoretinal surgery	67.2 (15.8)	38.2%	9.8 (10.0)	5.0 (3.0-13.0)	15	22	14	26	16	19	17	24	24	14	191
Corneal surgery	61.2 (19.5)	41.6%	15.9 (11.8)	14.0 (5.0-25.0)	14	8	26	12	7	14	14	18	22	7	142
Filtering surgery	64.4 (16.3)	43.8%	14.2 (10.9)	11.5 (5.0-22.5)	7	6	7	6	12	11	9	2	8	12	80
Combined cataract and filtering surgery	70.4 (10.5)	43.9%	10.8 (9.5)	7.0 (4.0-12.0)	6	5	4	8	5	2	2	4	4	1	41
Scleral and globe surgery	52.0 (19.9)	0%	16.4 (13.5)	13.0 (6.0-24.0)	1	2	4	2	1	2	3	3	1	2	21
Total	71.7 (13.0)	51.1%	9.0 (8.9)	6.0 (3.0-10.0)	908	912	839	706	618	627	657	757	815	683^a	7 522^b

a. 2018 is a truncated year, with the data collection ending on October 31, 2018

b. Number of total procedures

Continuous variables are displayed as mean (SD, standard deviation) and median (IQR, interquartile range). Categorical variables are displayed as number and percentage

Table 2. Incidence of Postoperative Acute Endophthalmitis after Intraocular Procedures from 2009 to 2018 in France

Procedures	Number of endophthalmitis	Proportion	Number of procedures	Endophthalmitis per procedure (/ procedure)	Endophthalmitis incidence (95%CI)
Cataract surgery	4 808	63.92%	7 316 077	1/1 522	0.0657 (0.0655–0.0659)
Intravitreal injection	1 296	17.23%	5 455 631	1/4 210	0.0238 (0.0236–0.0239)
Vitreoretinal surgery	698	9.28%	442 263	1/634	0.1578 (0.1568–0.1589)
Anterior segment surgery	245	3.26%	274 995	1/1 122	0.0891 (0.0880–0.0902)
Combined cataract and vitreoretinal surgery	191	2.54%	113 380	1/594	0.1685 (0.1663–0.1706)
Corneal surgery	142	1.89%	669 998	1/4 718	0.0212 (0.0208–0.0215)
Filtering surgery	80	1.06%	108 556	1/1 357	0.0737 (0.0721–0.0752)
Combined cataract and filtering surgery	41	0.54%	46 462	1/1 133	0.0882 (0.0857–0.0908)
Scleral and globe surgery	21	0.28%	11 492	1/547	0.1827 (0.1757–0.1898)
Total	7 522	100%	14 438 854	1/1 920	0.0521 (0.0520–0.0522)

2B. Incidence per Year for the Four Other Causes of Postoperative Acute Endophthalmitis

