

Antimicrobial susceptibility and resistance for local use in ophthalmology



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Background

In this study, we showed data from the microbiology laboratory in Turin Ophthalmic Hospital obtained in the last 10 years divided in two groups: 2007-2011 and 2012-2016

Objectives

To follow the evolution of bacterial resistances and evaluate the rise of multi – resistant families over the time.

Aims

The aim of this study was either to supervise susceptibility changes in bacteria groups of utmost importance – Staphylococcus aureus , Coagulase Negative Staphylococci (CoNS), Pseudomonadaceae, Streptococci, Enterobacteriaceae- or to evaluate the presence of multi resistant family sensitive only to 1-2 antimicrobial drugs among 16 we tested.

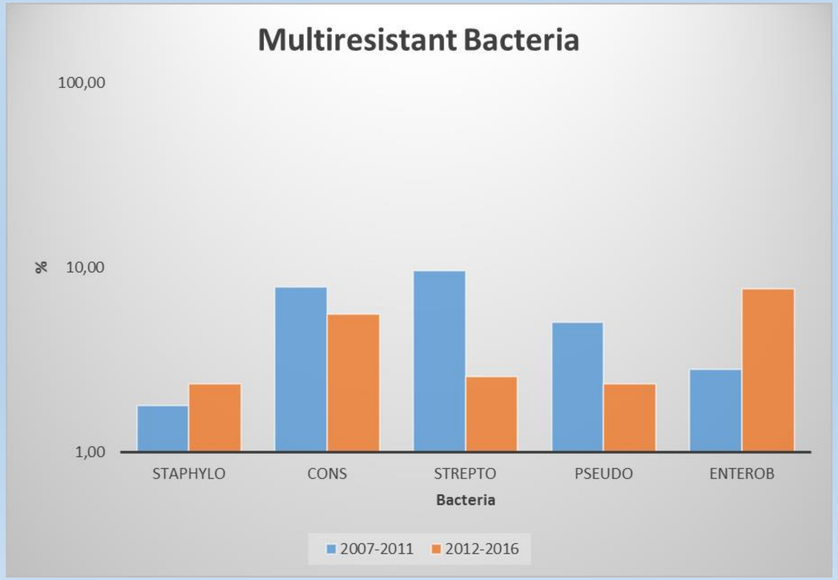
Materials and Methods

Culture were grown using both liquid (Hearth-brain broth) and solid (chocolate agar, blood agar) media. All isolates were identified from the standard laboratory procedures. Susceptibility tests were conducted using the Kirby- Bauer method.

	STREPTOCOCCI		PSEUDOMONAS		ENTEROB.		STAPHYL. AUREUS		CONS	
ANTIB.	2007-11	2012-16	2007-11	2012-16	2007-11	2012-16	2007-11	2012-16	2007-11	2012-16
AMP	90,07	90,48	3,6	5,63	9,72	13,79	24,7	28,8	34,2	44,4
CHL	★ 94,07	95,29	9,35	12,58	58,57	61,61	76,1	79,4	67,8	68,6
TET	62,13	72,9	10,07	13,91	21,23	31,72	68,9	73,5	56,9	58,2
NEO	3,15	3,53	39,21	35,1	60,87	59,08	69,7	69	63,3	66,3
NTM	25,89	26,12	78,06	67,55	85,68	71,26	★ 93,4	82,5	★ 78,4	78,1
AKN	3,1	8,79	83,09	81,13	81,84	70,57	81,8	68,4	67,8	64,4
CIP	70,75	67,45	★ 90,65	95,03	★ 92,58	83,91	70,7	69	59,4	55,2
MXF	★ 97,5	95,58	70,83	73,84	★ 90,84	85,52	★ 83,7	84,4	★ 84,2	76,4
OFX	64,81	70	70,86	78,48	85,42	80	69,5	70,5	53,8	48,7
GMN	5,88	6,77	69,06	71,52	75,19	64,37	68,2	60,3	52,4	44,4
AC F	6,88	28,33	3,6	15,89	3,84	19,31	76,3	82,1	62,3	67
TMN	1,21	2,99	71,94	75,83	66,75	45,06	62,6	47,8	39	37,6
NXN	21,32	27,05	79,5	89,07	81,07	75,4	55,8	60,9	47	40,5
LOM	22,64	27,39	79,5	83,77	81,07	76,78	65,2	64,7	47,8	41,8
VANCO	19,96	63,18	2,16	7,28	2,3	5,29	50,9	78,1	35,5	47,7
LVX	★ 94,43	89,4	★ 88,85	92,05	★ 94,12	85,52	76,7	75,1	67,4	58,2

=susceptibility decreasement ★ Higher susceptibility

Amp= Ampicillin, Chl= Chloramphenicol, Tet= Tetracycline, Neo= Neomycin, Ntm= Netilmicin, Akn= Amikacin, Cip=Ciprofloxacin, Ofx= Ofloxacin, Nxm= Norfloxacin, Lvx= Levofloxacin, Mxf= Moxifloxacin, Gmn= Gentamicin, Tmn= Tobramicin, Lom= Lomefloxacin. CoNS= CoagulaseNegative Staphylococci.



Results

The best antimicrobial drugs against the family of Streptococcus bacteria in the first period are Moxifloxacin, Levofloxacin and Chlorophenicol with a sensitivity respectively of 97,5%, 94,3%, 94,07%; in the second period the resistances increase against Levofloxacin (89,4%) and Ampicillin (90,48%), and Moxafloxacin and Chloramphenicol remain almost unchanged.

Conclusions

Antimicrobial drug resistance concerns almost all classes of antibiotics, but with differing extents in the case of different bacterial strains. The growing antibiotic resistance of common pathogens clearly influences the efficacy of antibiotic therapy and makes it necessary to evaluate the susceptibility of bacterial species or strains responsible for ocular infections.