



Zoonotic risk of some pathogenic agents involved in the dog's external otitis

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All pet animals have a specific microbial and parasitary flora wich, in certain conditions, may expose humans to the zoonotic risk.

Objectives

The aim o study was the identification of *Staphylococcus intermedius*, *Malassezia pachydermatis* and *Streptococcus canis* suspected as primary causes in the human and dog's otitis.

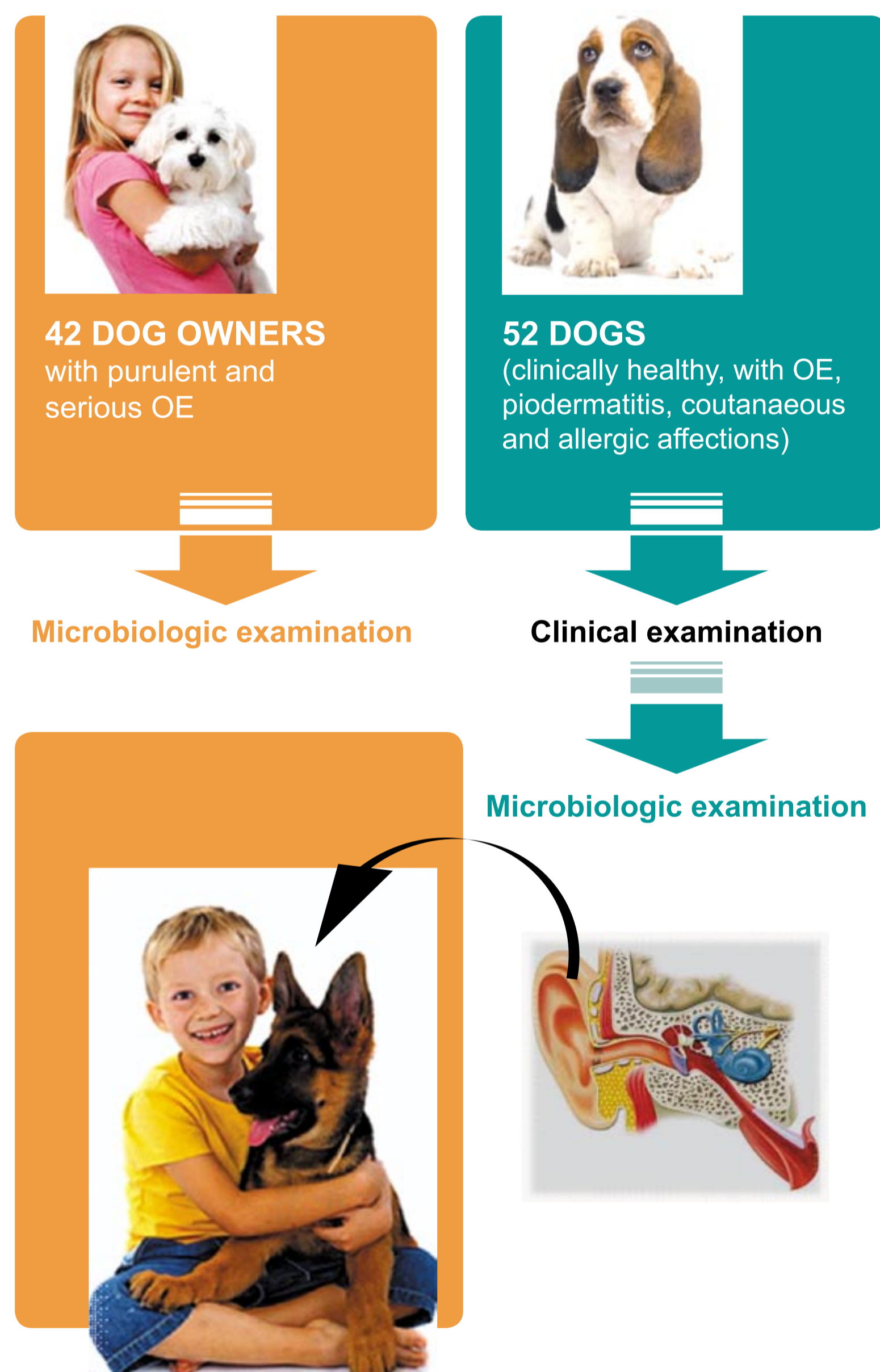
Materials and methods

In the study accomplished in one year (between May 2007 and May 2008), **43 humans**, dog owners, were been diagnosed with serous and purulent otitis.

After their's agreement, **52 dogs** have been examined for the detection of ear and/or skin infections and samples being collected.

The primary cultures (maintained in phosphate buffer medium, with glucose addition) were sown on calf's blood agar medium and examined after standard procedure.

The evaluation after API 20 STREP (Merieux) test was done according to the manufacturer's instructions.¹



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Results and discussions

All the streptococci strains were found negative (to: Voges Proskauer reaction, to the hypuric acid's hydrolysis, acid production in arabinose, manytol, sorbytol, inulin, rafinose, glycogen and starch) and positive (to galactosides, alkaline phosphatase, leucine amino peptidase, arginin dihidrolisis and to ribose acid production). These biochemical features correspond to *Streptococcus canis*, confirming him. The found code for *Streptococcus canis* was: 0073005 (see fig. 1).

For streptococci's antigenic identification Oxoid Strep Grouping Kit (Oxoid) was used (fig. 2).



Fig. 1. Results of API 20 STREP test



Fig. 2. Oxoid Strep Grouping Kit

Humans

From humans with external otitis, were isolated: *S. intermedius*, *S beta hemolyticus*, group G and *M. pachydermatis*. *S. intermedius* was frequently isolated (35.71%) and *S beta hemolyticus* group G represented 16.67%. *S. intermedius* was found associated with *Streptococcus* group G, respectively *M. pachydermatis* with *S. intermedius*.

Table 1
Results of microbiological study from humans with otitis externa

Patient	Otic secretion's type	Location	Isolated microorganisms		
			<i>Staphylococcus intermedius</i>	<i>Streptococci</i> group G, β hemolytic	<i>Malassezia pachydermatis</i>
1	S	Unit	Positive	Negative	Negative
2	P	Unit	Negative	Negative	Positive
3	P	Unit	Negative	Negative	Positive
4	P	Bi	Positive	Positive	Negative
5	P	Unit	Negative	Positive	Negative
6	P	Unit	Negative	Negative	Negative
7	P	Unit	Positive	Negative	Negative
8	P	Unit	Positive	Negative	Negative
9	P	Unit	Negative	Negative	Positive
10	P	Unit	Negative	Negative	Positive
11	P	Unit	Positive	Negative	Negative
12	P	Unit	Negative	Positive	Negative
13	P	Unit	Negative	Negative	Negative
14	P	Unit	Positive	Negative	Negative
15	P	Unit	Negative	Negative	Negative
16	P	Unit	Positive	Negative	Negative
17	P	Unit	Negative	Negative	Negative
18	P	Unit	Positive	Negative	Negative
19	P	Unit	Positive	Positive	Negative
20	S	Unit	Negative	Positive	Negative
21	P	Unit	Positive	Negative	Negative
22	P	Unit	Negative	Negative	Positive
23	P	Unit	Negative	Negative	Positive
24	P	Unit	Negative	Positive	Negative
25	P	Unit	Positive	Positive	Negative
26	P	Unit	Positive	Negative	Negative
27	P	Unit	Negative	Negative	Negative
28	P	Unit	Negative	Negative	Negative
29	P	Unit	Negative	Negative	Negative
30	P	Unit	Positive	Negative	Negative
31	P	Unit	Positive	Negative	Positive
32	P	Unit	Negative	Negative	Negative
33	P	Unit	Negative	Negative	Negative
34	P	Unit	Negative	Positive	Negative
35	S	Unit	Negative	Positive	Negative
36	P	Unit	Negative	Negative	Negative
37	P	Unit	Negative	Negative	Negative
38	P	Unit	Positive	Negative	Negative
39	P	Unit	Negative	Negative	Negative
40	P	Unit	Negative	Negative	Negative
41	P	Unit	Negative	Negative	Negative
42	P	Unit	Negative	Negative	Negative

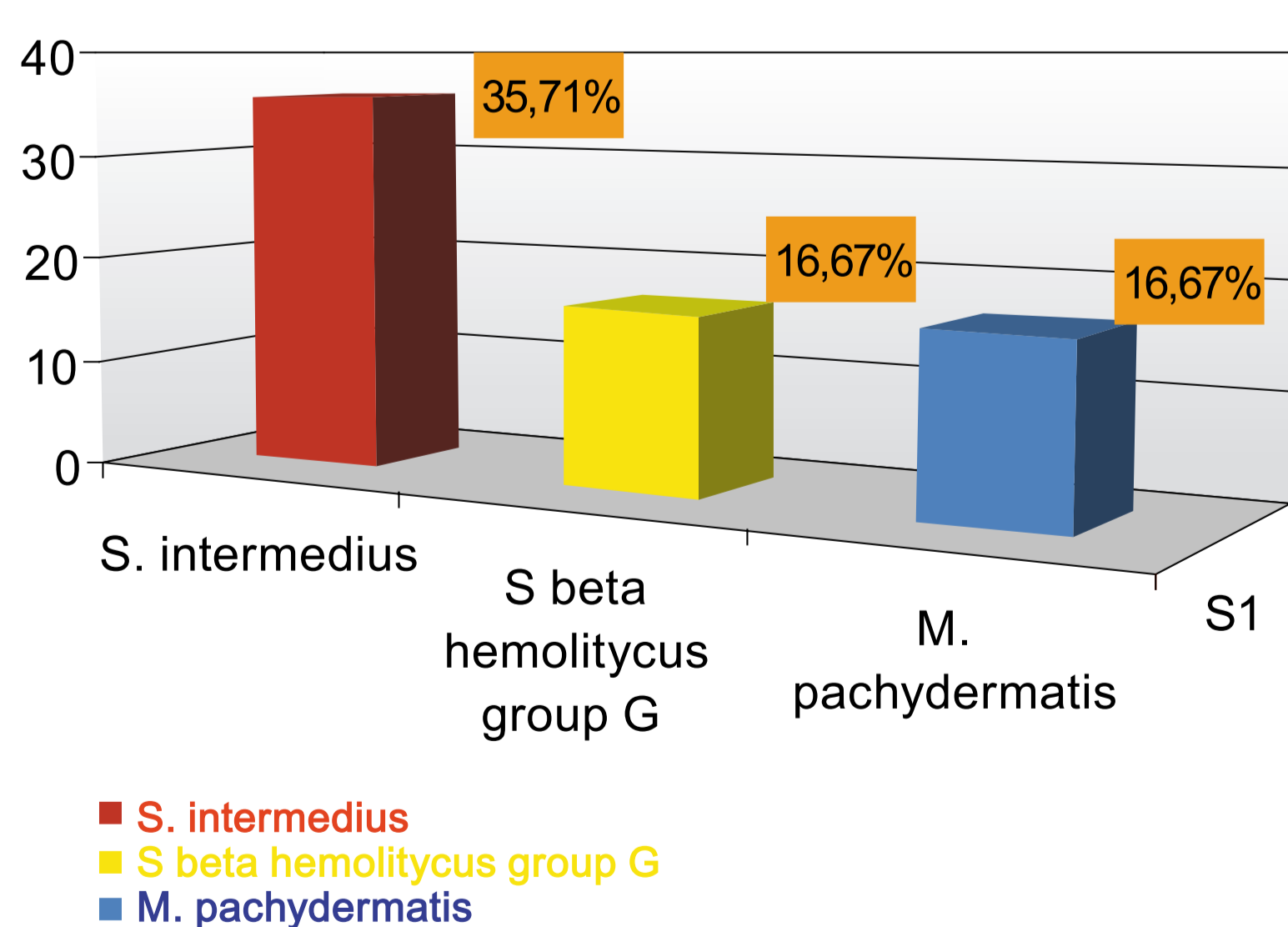


Fig. 3. The results of microbiological examination from human patients with otitis externa

Dogs

Microorganisms with a zoonotic risk were isolated from dogs, thus, from the total 52 samples: 2 were from acute external otitis; 7 from chronic recurrent external otitis; 3 from pyodermititis; 4 from allergic diseases; 8 from seborrheic diseases and 28 from healthy dogs.

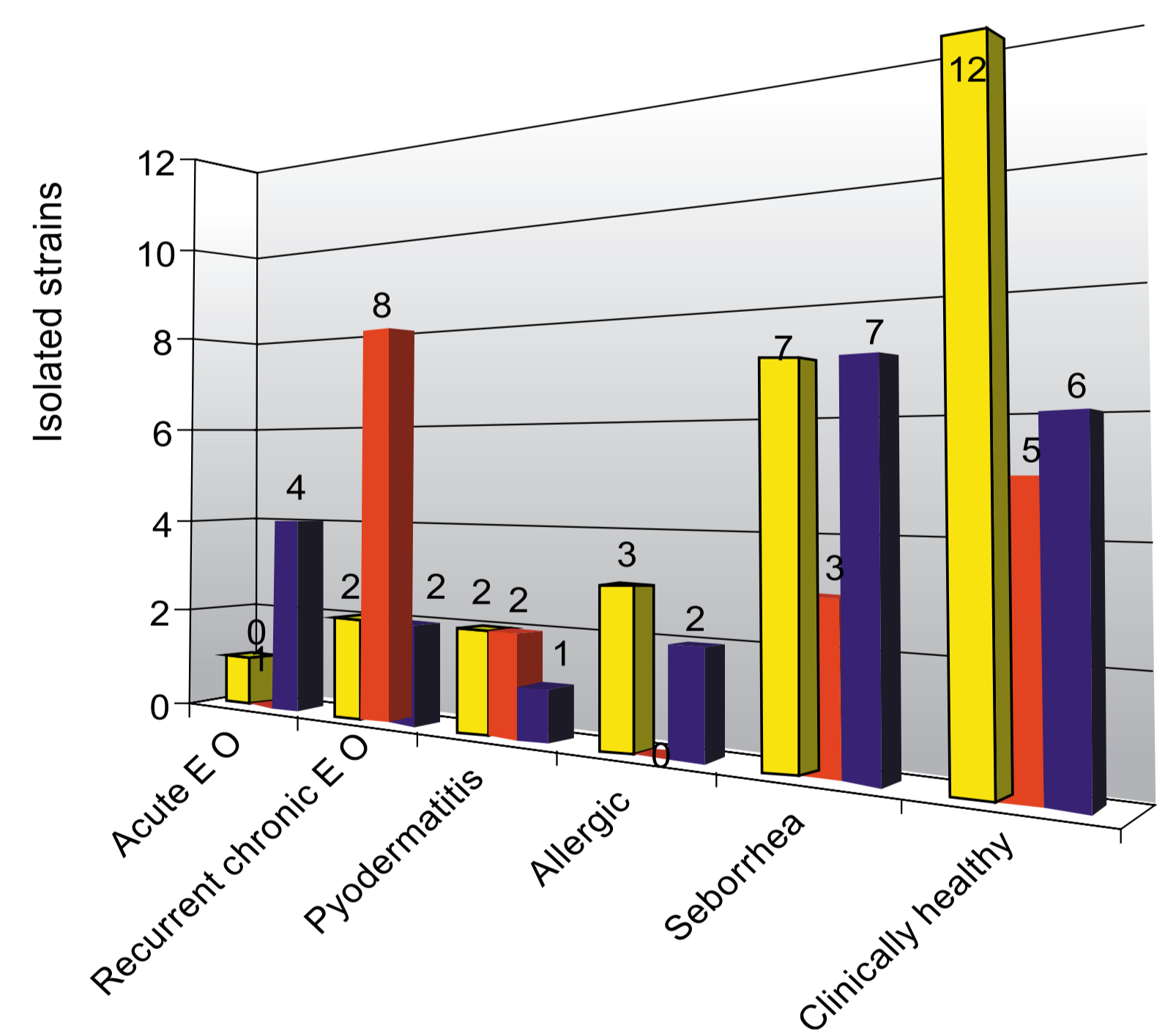
There were isolated: 27 *S. intermedius*, 18 *Streptococcus* group G and respectively 22 *M. pachydermatis* strains.

The *S. intermedius* strains isolated were: 23.07% from clinically healthy; 13.46%, from seborrheic and allergic skin diseases and in a small percentage from the rest of the skin and ear diseases.

The samples taken from dogs, revealed pathogenic microorganisms, considered of a high zoonotic risk, other bacteria having no epidemiological importance being not quantified.

Table 2
Result of clinical and microbiological study from exanimate dogs

Affection type	Analyzed samples (Nr. = 52)		Isolated microorganisms samples (Nr. = 52)					
			<i>S. intermedius</i>		<i>Streptococci</i> group G (<i>S. canis</i>)		<i>Malassezia pachydermatis</i>	
	Nr.	%	Isolated (nr.)	%	Isolated (nr.)	%	Isolated (nr.)	%
Acute E O	2	3,85	1	1,92	-	-	4	7,69
Recurrent chronic E O	7	13,46	2	3,84	8	15,38	2	3,84
Pyodermititis	3	5,78	2	3,84	2	3,84	1	1,92
Allergic	4	7,69	3	5,76	-	-	2	3,84
Seborrhea	8	15,38	7	13,46	3	5,76	7	13,46
Clinically healthy	28	53,84	12	23,07	5	9,61	6	11,53



Results of microbiological examination from dogs

The results of microbiologic exams confirms data from literature in what concerns the presence of shown pathogenic microorganisms on skin, auditive conduct, booth in dogs clinically healthy and of those with various coutaneous affections. The study results suggest that the identified patogenic agents presence on the skin of healthy dogs is part of normal microflora and thereby can be transmited to humans. The are only a few informations about the number and density of up mentioned microorganisms on the skin of humans and about them viability on this host and respectively about the intimate modalities of infection spreading.

Staphylococcus intermedius have shown to be an ubicitar of dog's nasopharinx and in all most all situations lessions appearing as a consequence of germ's endogenic and opportunistic features.

Conclusions

- Yeasts and bacteria coexist very well and they multiply simultaneously in the same anatomical sites.
- From the humans with external otitis were isolated: *S. intermedius*, *S. beta hemolyticus*, group G and *M. pachydermatis*.
- The zoonotic microorganisms associations in the human and dog samples were often found.

¹ (The suspension's obtaining after the colony transfer, the strips' incubation to 37 °C, in normal atmosphere, for four hours and intense light exposure: 100W, 10 sec., to evaluate enzymatic activity, reheating for another 20 hours).

² (The suspension's obtaining after the colony transfer, the strips' incubation to 37 °C, in normal atmosphere, for four hours and intense light exposure: 100W, 10 sec., to evaluate enzymatic activity, reheating for another 20 hours).