

O328

2-hour Oral Session

Still thriving at the host's expense: parasitic infection

A real-time PCR to detect *Leishmania infantum* DNA in immunocompetent patients with chronic inflammatory rheumatism living in rural Northern Italy and treated with biologic drugs

Martina Maritati*¹, Pierre Marty², Stefania Hanau³, Gregory Michel⁴, Franco Dallochio³, Tiziana Bellini³, Gianluca Rugna⁵, Sara Bonazza⁶, Marcello Govoni⁶, Shawgi H. Almugadam³, Carlo Contini¹

¹*Infectious Diseases, Medical Sciences, Ferrara, Italy*

²*Université de Nice Sophia Antipolis, Faculté de Médecine, 06107 Nice Cedex 2, France , Parasitologie-Mycologie, Centre Hospitalier Universitaire L'archet, Cs 23079, 06202 Nice Cedex 3, France , Inserm, U1065, Centre Méditerranéen de Médecine Moléculaire, C3m, Toxines Microbiennes Dans la Relation Hôte Pathogènes, 06204 Nice Cedex 3, France , Nice, France*

³*Biochemistry Unit , Dept. of Biomedical and Specialty Surgical Sciences, Ferrara, Italy*

⁴*Université de Nice Sophia Antipolis, Faculté de Médecine, 06107 Nice Cedex 2, Inserm, U1065, Centre Méditerranéen de Médecine Moléculaire, C3m, Toxines Microbiennes Dans la Relation Hôte Pathogènes, 06204 Nice Cedex 3, France , Nice, France*

⁵*Ist. Zooprof. Sperim. Lombardia & Emilia Romagna, Section of Modena, Modena, Italy*

⁶*Rheumatology, Medical Sciences, Ferrara, Italy*

Background: Leishmaniasis still represents a reason of public concern worldwide. In Italy, according to epidemiological data, are diagnosed 80 cases of Visceral Leishmaniasis (VL) and 100 cases of Cutaneous Leishmaniasis (CL) per year. The areas historically interested by parasite circulation are islands, southern regions and the coasts. In Emilia-Romagna, a region of northern Italy, 6.5 cases/year of VL and 3 cases/year of CL have been diagnosed from 2008 to 2012. An increasing number of cases has been registered in 2013, with 30 cases of VL and 9 of CL. The geographical areas involved were Ravenna and Rimini but also the hinterland (Imola, Modena, Bologna). According to the spread of *Leishmania infantum* (Li) circulation in these areas, aim of our study was to assess the level of subclinical infection (circulant DNA) in patients affected by chronic inflammatory rheumatism (CRI), treated with biologic drugs (BD) and as a consequence, more vulnerable to this parasitosis; second purpose was to correlate the eventual positivity for Li DNA to the area of residence.

Material/methods: We retrospectively analyzed DNA extracted from PBMC of patients affected by CRI, treated with BD for at least 5 years. Each sample has been tested with a qualitative PCR for Li in Infectious Diseases Unit of the University of Ferrara; the positive samples were then tested with a qPCR in the Parasitology Laboratory of the University of Nice, France. The statistical analysis has been performed with the Chi Square Test.

Results: Among the 50 analyzed samples, 18 resulted positive (36%) and 1 doubtful (2%) with qualitative PCR; qPCR confirmed all the results, detecting a high parasite burden (1 to 136 parasite/ml in 4 patients, 1.000 to 40.000 in 11 patients and over 1.000.000 in 3 patients). The doubtful sample

resulted to be unequivocally negative. All the analyzed patients had a CD4/CD8 ratio >1.5 . 14/18 patients lived in rural areas (77,7%), while 4 (22.3%) in urban areas. Among the 32 patients negative for Li DNA, 8 resided in rural areas (25%) and 24 in urban areas (75%) ($p \leq 0.0003$). The provinces with the highest incidences were Ravenna (7 cases), Imola (6 cases), Rovigo (3 cases) and Ferrara (2 cases).

Conclusions: qPCR performed on PBMC gave higher DNA detection rates than the ones obtained on whole blood in asymptomatic patients. This may be attributable to the reason that i) PBMC are target cells for Li or ii) to the mechanism of action of BD, that can make the control of parasitic infection less efficient. According to our knowledge, reports of Li qPCR on DNA extracted from PBMC on particular subset of CIR receiving BD are lacking. This should be further investigated to study the kinetics of parasitic infection especially in treated patients in rural areas