LYMPHOCYTE-ACTIVATED MACROPHAGES ENHANCE IN-VITRO EFFECTS OF SPIRAMYCIN AGAINST TOXOPLASMA

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Uncommitted mouse peritoneal macrophages were incubated with either splenic lymphocytes taken from mice congenitally infected with Toxoplasma (Hay et al 1985), or with similar cells harvested from mice with no experience of a Toxoplasma infection. After 48 hours incubation, lymphocytes were removed from each culture system and macrophage monolayers prepared. Toxoplasma endozoites were added to the respective cultures and allowed to interact with macrophages for one hour. After thorough washing, macrophages were incubated for 72 hours with media containing spiramycin at concentrations of 0.1, 1.0, 50, 100 and 200ugmL^{-1}, or control media containing no drug.

Table 1 Percentage of infected cells, mean number of organisms per parasitophorous vacuole and percentage of infected cells with rosettes after treatment with spiramycin in the presence of non-Toxoplasma stimulated (I) and Toxoplasma stimulated (II) lymphocytes.

	% Infected cells		Mean number of organisms per vacuole		% Infected cells with rosettes	
Spiramycin ugmL^{-1}	I	II	I	II	I	II
0.1	24	14	9	6	39	24
1.0	21	16	8	7	41	26
50.0	23	7	9	5	35	17
100.0	20	9	7	3	28	15
200.0	14	7	4	3	20	14
No drug	25	16	8	5	43	35

Table 1 shows that the numbers of infected cells, numbers of cystozoites in parasitophorous vacuoles and numbers of rosette-containing cells were reduced only at the highest concentration of spiramycin in the non-lymphocyte-interacted macrophages ($P<0.05$). In contradistinction, lymphocyte-interacted macrophages, treated with drug provided considerable reduction in the number of infected cells, and the number of organisms within infected cells, at concentrations of 50ugmL^{-1} and above ($P<0.01$).

Thus preincubation of macrophages with Toxoplasma-activated lymphocytes appears to improve the anti-toxoplasmic effect of spiramycin in this in vitro system.

The gift of spiramycin (Batch AD 13879) from Rhone Poulenc Ltd. is gratefully acknowledged.

Hay, J et al (1985) Ann. Trop. Med Parasitol. 79: 113-115.