

## Changes in peripheral white cell profile and lymphocyte subsets in early onset of anorexia nervosa. The ANABEL Study

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Patients with anorexia nervosa (AN) are well known to show altered immune responses; however, results are controversial depending on the evolution period of the illness. Indeed, CD4/CD8 ratio, an index of the nutritional status, has been found to change in the long term<sup>(1)</sup>. Female adolescents (*n* 30) diagnosed with AN for up to 12 months were recruited and compared with age- and gender-matched healthy controls (C; *n* 98). Height and weight values were measured and BMI was calculated. Leucocyte number and profile values were determined (absolute and relative numbers of neutrophils, eosinophils, basophils, monocytes and lymphocytes). Lymphocyte subsets were analysed by flow cytometry: CD3<sup>+</sup> (total T-lymphocytes), CD4<sup>+</sup> (T-helper lymphocytes), CD8<sup>+</sup> (T cytotoxic lymphocytes), CD4<sup>+</sup>CD45RO<sup>+</sup> and CD8<sup>+</sup>CD45RO<sup>+</sup> (memory T-cells), CD4<sup>+</sup>CD45RA<sup>+</sup> and CD8<sup>+</sup>CD45RA<sup>+</sup> (naive T-cells), CD19<sup>+</sup> (B-lymphocytes) and natural killer cells (CD3<sup>-</sup>CD16<sup>+</sup>56<sup>+</sup>). Total leucocytes, neutrophils, basophils and monocytes were lower in early AN patients than in C (*P*<0.05), and so were natural killer and memory (CD4<sup>+</sup>CD45RO<sup>+</sup> and CD8<sup>+</sup>CD45RO<sup>+</sup>) cells (*P*<0.001). Total CD8<sup>+</sup> T-cell number was also lower (*P*<0.05) in AN patients than in C, but CD4<sup>+</sup> remained similar in both groups, leading to a higher CD4/CD8 ratio in AN patients (*P* = 0.001). These results show a modified behaviour of immunocompetent cells in AN. The leucocyte profile and lymphocyte subset values suggest that AN patients might develop a reduced response capacity against antigen challenges, despite showing unmodified humoral immunity (measured as CD19<sup>+</sup> counts) and a higher CD4/CD8 ratio compared with controls.

	Relative values (%)					Absolute values (cells/ml)				
	Controls		AN patients		<i>P</i>	Controls		AN patients		<i>P</i>
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
CD19 <sup>+</sup>	11.1	2.89	12.4	4.21	NS	251	89.0	264	106.7	NS
CD3 <sup>-</sup> CD16 <sup>+</sup> 56 <sup>+</sup>	16.5	6.57	9.6	4.46	<0.001	382	196.4	206	104.2	<0.001
CD3 <sup>+</sup> CD45RO <sup>+</sup>	19.6	9.99	38.5	15.11	<0.001	750	249.3	887	260.2	0.012
CD8 <sup>+</sup>	27.	5.64	24.0	4.73	0.010	651	212.0	513	145.4	0.015
CD8 <sup>+</sup> CD45RO <sup>+</sup>	42.0	13.64	24.2	11.71	<0.001	242	127.7	139	59.4	<0.001
CD8 <sup>+</sup> CD45RA <sup>+</sup>	58.2	3.02	60.9	21.23	NS	330	145.0	341	120.4	NS
CD4 <sup>+</sup>	37.7	6.55	42.0	7.10	0.002	861	281.6	905	276.9	NS
CD4 <sup>+</sup> CD45RO <sup>+</sup>	51.6	10.92	24.6	7.92	<0.001	406	161.3	238	76.1	<0.001
CD4 <sup>+</sup> CD45RA <sup>+</sup>	48.1	10.71	44.2	18.07	NS	388	177.2	456	212.0	NS
CD4/CD8		-		-		1.47	0.466	1.82	0.506	0.001

Values are presented as means and SD. Differences between means were analysed by Student's *t* test and considered significant at *P*<0.05.

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1. Marcos A (1997) *Nutrition* **13**, 853–862.