

Haptoglobin Types in Breast Carcinoma¹

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Abstract. In a series of 109 Greek patients with breast carcinoma, a significant increase in the haptoglobin type 1-1 was observed.

Very little information has hitherto been gathered on the relationship between haptoglobin types and breast cancer. Thus Larkin [1967] studied a group of 144 patients and found no association. Kleisbauer *et al.* [1975] studied haptoglobin types in various types of cancer. In 435 patients with 'solid tumours' including breast cancer, a decreased frequency of the *Hp*¹ gene was found. Unfortunately, the patients were not subdivided according to the location of the tumours.

In this paper, we report the distribution of the haptoglobin types in a series of 109 Greek patients with breast cancer.

Serum samples were obtained from patients admitted to the Hellenic Anticancer Institute which receives patients from the whole of Greece. The samples were analysed by horizontal starch-gel electrophoresis, using a discontinuous Tris-borate system, pH 8.65 [Poulik, 1957], and stained with benzidine.

Table I shows the distribution of haptoglobin types in the patients and the general Greek population [Blumberg *et al.*, 1964]. In both the patients and the general population there was close agreement between observed numbers and expected numbers assuming a Hardy-Weinberg equilibrium.

The frequency of the *Hp*¹ gene was significantly higher in the patients than in the control population ($\chi^2 = 4.21$, 1 d.f., $p < 0.05$). Table I shows, however, that this increase is exclusively due to an increased frequency of the *Hp* 1-1 type in the patients. A comparison between patients and controls with respect to the *Hp* 1-1 type gave a $\chi^2 =$ of 4.70 ($p < 0.05$).

This observation will of course need confirmation. The representativity of the control material may be debated. The association between leukaemia and the *Hp*¹ gene reported previously [Latner *et al.*, 1960; Peacock, 1966] may be of relevance in this connection.

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Table I. Haptoglobin types in 109 Greek patients with breast carcinoma and in the Greek population

	Hp 1-1		Hp 2-1		Hp 2-2		Hp ¹ frequency	total
	n	%	n	%	n	%		
Patients	18	16.5	47	43.1	44	40.4	0.381	109
Population	61	9.6	273	42.9	302	47.5	0.311	636

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