EXPERIMENTAL METHODS FOR CLINICAL PRACTICE

Factors of Nonspecific Resistance and Their Correction in Patients with Pyloroduodenal Ulcers after Gastrectomy

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Translated from *Byulleten' Eksperimental'noi Biologii i Meditsiny*, Vol. 124, No. 11, pp. 574-576, November, 1997
Original article submitted December 23, 1996

Immunological tests are carried out in 40 patients with pyloroduodenal ulcers before and after Billroth-I gastrectomy. In patients with duodenal and pyloric ulcers, various disturbances in nonspecific immunity are noted during the preoperation period. Treatment with levamisole in a dose of 150 mg 2 days before surgery and on days 5-6 postoperation improves immunological status in patients with pyloroduodenal ulcer.

Key Words: *factors of nonspecific resistance; pyloroduodenal ulcer; levamisole*

Surgical treatment of pyloroduodenal ulcers has been extensively discussed in the literature [4,8,10]. Distal gastrectomy is the most common treatment in this pathology, but the outcome depends not only on the nature and distribution of pathological process but also on the state of the immune system in these patients [3,5-7]. The state of the nonspecific resistance system in patients with pyloroduodenal ulcer after gastrectomy has not been previously studied.

Our goal was to evaluate the state of nonspecific resistance and its correction in patients with pyloroduodenal ulcer after gastrectomy.

MATERIALS AND METHODS

Immunological tests were performed in 40 patients (31-60 years old) with pyloroduodenal ulcers, 24 of them had duodenal ulcer disease (DUD) and 16 patients had pyloric ulcer disease (PUD). None of selected patients had concurrent diseases affecting immunological status. The presence of gastroduodenal ulcers was verified by routine fibroendoscopy. History of the disease varied from 1 to 7 years.

Control group comprised fifty 31-50-year-old healthy donors.

All patients underwent Billroth-I gastrectomy (resection of 2/3 stomach). Circulating immune complexes (CIC) were assayed as described elsewhere [9], lysozyme activity was measured by a nephelometric method [2], and activity of complement was evaluated colorimetrically [1].

RESULTS

In healthy subjects, the activity of the complement was 82.51±2.70%, lysozyme activity was 50.54± 1.28%, and the level of CIC was 63.28±6.10 units (Table 1).

In patients with DUD the activities of lysozyme and complement decreased, and CIC content increased in comparison with the control values (Table 1). One day after surgery, we observed further decrease in lysozyme and complement activity and a

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0007-4888/97/0011-1131$18.00

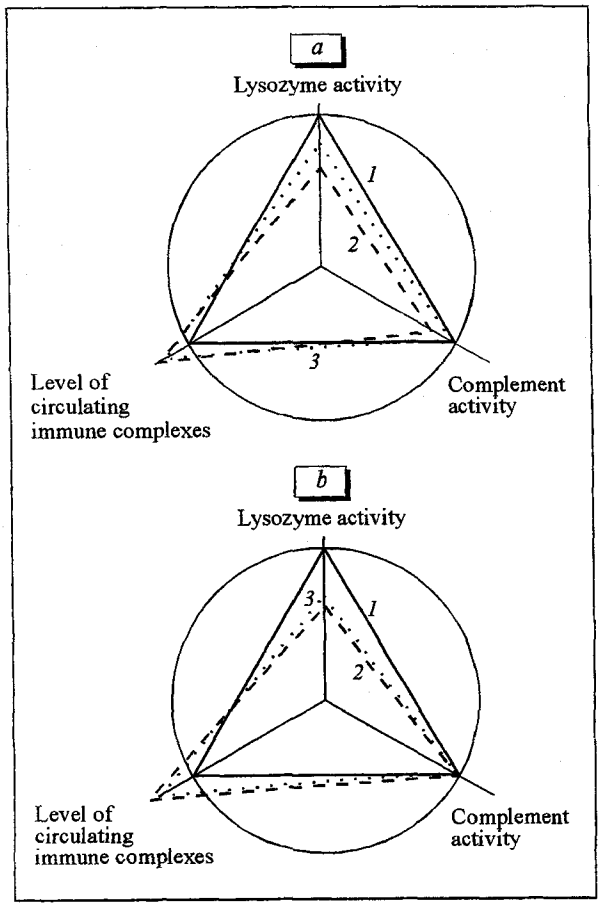

Fig. 1. Blood immunogram of patients with duodenal (*a*) and pyloric (*b*) ulcers after Billroth-I gastrectomy (day 7). *1*) control; *2*) without immunostimulation; *3*) treatment with levamisole.

rise of CIC compared with the preoperation level. On days 3 and 7 postoperation, lysozyme and complement activities and the level of CIC surpassed the preoperation levels.

In patients with PUD, lysozyme and complement activities were substantially decreased, while CIC content increased in comparison with the control (Table 1). On day 1 postoperation, lysozyme activity decreased, while CIC and activity of complement rose compared with preoperation levels. On days 3 and 7 of the postoperation period, the level of CIC and activity of complement continued to increase, while lysozyme activity remained below the preoperation level.

Thus, our study demonstrated changes in parameters of nonspecific resistance in patients with DUD and PUD after gastrectomy.

The observed changes in the factors of nonspecific resistance in patients with DUD and PUD suggest the involvement of different factors in the pathogenesis of pyloroduodenal ulcer of various locations. On the other hand, our findings show the necessity of treating these patients with immunocorrectors both before and after surgical intervention.

TABLE 1. Factors of Nonspecific Resistance in Healthy Donors and Patients with Pyloroduodenal Ulcers before and after Gastrectomy (*M*±*m*)

Component	Control group (*n*=50)	Patients with DUD (*n*=24)					Patients with PUD (*n*=16)				
		before surgery	after surgery, days				before surgery	after surgery, days			
			1	3	7			1	3	7	
Level of CIC	63.28±6.10	70.26±0.84	79.18±0.92^{+++}	72.15±0.29^{xxx}	74.21±1.48^{+xx}		78.81±2.18*	79.94±0.13*	84.56±1.05^{***xxx}	81.16±0.12^{***xxxooo}	
Lysozyme activity, %	50.54±1.28	36.40±1.29***	36.12±0.81**	42.94±0.85^{*****xxx}	39.16±1.08^{***o}		33.82±0.35***	31.65±1.28***	32.19±1.32***	34.58±0.90^{***x}	
Complement activity, %	82.51±3.70	70.66±1.45**	68.25±0.69**	71.14±0.45^{**xxx}	73.62±0.51^{**xxxooo}		73.45±1.39*	74.18±0.60*	78.72±0.71^{++xx}	80.12±0.92^{+++xxx}	

Note. $^{*}p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$ in comparison with the control; $^{+}p<0.05$, $^{++}p<0.01$, $^{+++}p<0.001$ in comparison with the corresponding values before operation; $^{x}p<0.05$, $^{xx}p<0.01$, $^{xxx}p<0.001$ in comparison with day 1 postoperation; $^{o}p<0.05$, $^{oo}p<0.01$, $^{ooo}p<0.001$ in comparison with day 3 postoperation.

We compared immunological parameters of patients with pyloroduodenal ulcers treated with the immunomodulator levamisole (150 mg) 2 days before surgery and on days 5-6 postoperation with the corresponding parameters in untreated patients on day 7 postoperation.

It was found that levamisole promotes the rise of lysozyme and complement activity and CIC decrease in patients with DUD by 10 and 6%, respectively, in comparison with patients receiving no immunomodulators (Fig. 1, *a*).

In patients with PUD, immunomodulator promoted normalization of complement activity; lysozyme activity in patients treated with levamisole 10% surpassed that observed in patients receiving no immunomodulators (Fig. 1, *b*). The level of CIC in patients treated with levamisole was increased by 27% in comparison with the control.

Thus, our results demonstrate that in patients with pyloroduodenal ulcers immunocorrecting therapy before and after surgical treatment improves immunological parameters, promotes convalescence, and prevents various complications.

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