

GASTROINTESTINAL BLEEDING IN PATIENTS WITH ACUTE SURGICAL DISEASES

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The aim of the study was to analyse patients in whom upper gastrointestinal bleeding appeared during hospitalization in the surgical clinic.

Material and methods. The study group consisted on 61 patients. 35 were women and 26 were men. The mean age of women was 76 and men 64.8 years. The mean age of the whole group was 72.3 years. 30 patients (49%) were hospitalized in general surgery ward, 16 (26%) in trauma unit and 15 patients (25%) in intensive care unit.

Results. The reasons of hospitalisation in general surgery ward were: acute cholecystitis, acute pancreatitis, peritonitis, lower extremity ischemia with foot necrosis, large bowel cancer and cancer of the gall-bladder. Patients were admitted to trauma unit because of hip and pelvic fractures. Patients were hospitalized in intensive care unit because of polytrauma, diffuse peritonitis, isolated head trauma and necrotising pancreatitis. The main source of bleeding were duodenal and gastric ulcers. It appeared in 28 (45.9%) and 18 (29.5%) patients respectively. The other reasons of bleeding were: erosive gastritis (9 patients) and Mallory-Weiss syndrome (6 patients). Bleeding recurrence was found in 21 patients (34.4%). This group of patients was characterised by high mortality rate 43%. The highest was among patients in intensive care unit. It reached 60%.

Conclusions. Based on the performed analysis we come to the following conclusions: 1. Upper gastrointestinal bleeding is serious complication during hospitalisation in surgical clinic; 2. Usually it affects older patients; 3. This complication is associated with high rate of rebleeding and high mortality rate.

Key words: secondary upper gastrointestinal bleeding, hospitalisation, acute surgical diseases, gastric ulcer, duodenal ulcer

Upper gastrointestinal bleeding is still considered to be a serious clinical problem. The above is proved not only by the number of hospitalised patients (in USA: 150-300/100 thousand patients a year), but also by the maintaining death rate. It ranges between 10 and 20%. Patients who suffered from haemorrhage during their stay in the hospital due to other causes constitute another peculiar group. In numerous publications hospitalisation is enumerated as one of risk factors related with bleeding and increased death rate (1-4). Major-

ity of works related with this problem focus only on one group of patients, namely those who are hospitalised on intensive care unit. Respiratory failure, concussion, coagulopathy and sepsis are well known haemorrhage risk factors in these patients (5, 6, 7). Occurrence of haemorrhage during stay on gastric and internal medicine departments was also described (8-11). Nonetheless, there are no publications concerning haemorrhage during stay at surgical clinic, in patients suffering from acute ailments not only within the alimentary tract.

The aim of the thesis was to analyse results obtained in group of patients, in case of whom bleeding from the upper segment of the alimentary tract occurred during their stay in the clinic due to acute surgical ailments. It was compared with group of patients admitted during the same period due to haemorrhage to the lumen of the upper segment of the alimentary tract.

MATERIAL AND METHODS

The study covered patients hospitalised in 2nd Department of General Surgery Collegium Medicum Jagiellonian University in Cracow between 1993 and 2008. Within this period of time 61 patients were hospitalised, in case of whom haemorrhage occurred during the treatment of acute surgical diseases (group I). The group included 35 women and 26 men. Average age in case of women was 76 years old, and in case of men it was 64.8 years old. The average age of the whole group was 72.3 years old (tab. 1). 30 patients (49%) were hospitalised on general surgery ward, 16 (26%) on traumatic surgery ward and 15 (25%) on intensive care unit.

During this period of time 1150 patients were admitted due to bleeding from the upper segment of the alimentary tract (group II). 323 women and 827 men were hospitalised. Average age of women was 61.13 years old, and the average age of men was 50.2 years old. Average age of the whole group equalled 54.2 (tab. 1)

All patients were treated according to homogenous diagnostic and therapeutic protocols. Haemorrhage was diagnosed on the basis of medical history, physical examination and per rectum examination, in which tarry stool was observed. Next, an endoscopic examination was performed, during which esophagus, stomach and duodenum were evaluated. Forrest's scale was utilized to determine the haemorrhage activity (Ia – visible spurting arterial vessel, Ib – blood oozing from ulceration, IIa – unbleeding arterial vessel visible

at the bottom of the ulceration, IIb – ulceration covered with thrombus, III – ulceration without features of bleeding).

In order to control bleeding usually injections with adrenaline solution in physiological saline with 1:10000 concentration and coagulation with argon plasma, and in case of vessel protruding from the bottom of ulceration clips were placed. In patients with gastric ulcer, after controlling the haemorrhage symptoms samples were taken from edges and bottom of the ulceration by means of gastroscopic method, in order to exclude neoplastic process. In all patients pharmacological therapy was used simultaneously, at first it was venous therapy and then oral administration in the form of medications blocking proton pump. Eradication therapy was introduced in case of diagnosing *H. pylori* infection. Erythrocyte mass was transfused to level blood losses.

RESULTS

Bleeding during acute surgical disease therapy occurred in 61 patients (group I). Reasons for admitting to general surgery department (30 patients) included: acute cholecystitis – 6 patients, acute pancreatitis – 8 patients, peritonitis – 7 patients, ischaemia of lower limbs with feet necrosis – 4 patients, large intestine cancer – 3 patients and gallbladder cancer – 2 patients. As far as traumatic surgery ward is concerned, haemorrhage was observed in 16 patients. They were hospitalised due to femoral bone neck fracture – 13 patients, pelvic fracture – 2 patients and open shinbone fracture – 1 patient. On intensive care unit haemorrhage was observed in 15 patients. Reasons for hospitalisation included: multi-organ injury – 6 patients, diffuse peritonitis with sepsis – 4 patients, isolated head injury – 3 patients and severe necrotizing pancreatitis – 2 patients. Average stay at the hospital of all the above-mentioned patients equalled 28 days. Usually haemorrhage occurred in

Table 1. Characteristics of the study groups

Group	Number of patients	Female	Mean age	Male	Mean age
I	61	35 (57,4%)	76	26 (42,6%)	64,8
II	1150	323 (28%)	61,13	827 (71,9%)	50,2
Total	1211	358 (29,6%)	66,3	853 (70,4%)	56,2

14th day, regardless of the ward where the patient was hospitalised.

Group I included more women than men (35/26). Women were also older (76/64.8). In group II there were more men (827). Group included 323 women. Average age of men equalled 50.2 years old, and the average age of women – 61.13 years old. Patients in group I were much older than those in group II (72.3/54.2 years old) (tab. 1).

Main reasons for haemorrhage in patients from group I was duodenal and gastric ulceration. Bleeding duodenal ulcer was observed in 28 patients (45.9%). Gastric ulceration caused bleeding in 18 patients (29.5%). In 9 patients (14.8%) haemorrhagic gastritis, and in 6 patients (9.8%) Mallory-Weiss syndrom were observed (tab. 2). In group II the most common cause of haemorrhage was gastric and duodenal ulceration. It was observed altogether in 52% of patients. Other ones: haemorrhagic gastritis (16.7%) and Mallory-Weiss tear (11.3%). Other reasons, such as esophagus varices, ulceration in anastomosis after stomach resection and stomach cancer amounted to 20% (tab. 2). Sources of bleeding from the upper alimentary tract in group I, depending on the reason for hospitalisation are presented in tab. 3.

Evaluating the intensification of bleeding according to Forrest's scale in group I in case of duodenal ulcer, active bleeding (Forrest Ia, Ib) was diagnosed in 12 patients (40%); symptoms of previous haemorrhage (Forrest IIa, IIb) were observed in 14 patients (46.7%). In 4 patients (13.3%) the bottom of the ulceration was clean, covered with fibrin (Forrest III). In case of gastric ulceration active bleeding occurred in 13 patients (72.3%), symptoms of previous haemorrhage were observed in 3 patients (16.7%). Clear bottom ulceration was observed in 2 patients (11.1%). In group II in case of duodenal ulceration active bleeding was reported in 136 patients (40.2%), symptoms of previous haemorrhage in 103 patients (30.3%). In gastric ulceration active bleeding was noted in 108 patients (41.7%), symptoms of previous haemorrhage were reported in 110 patients (42.5%). Clear bottom ulceration was diagnosed in 41 patients (15.8%).

Significant factor having an influence on prognosis in case of bleeding to the lumen of the alimentary tract is its recurrence. In group I symptoms of repeated bleeding were observed in 21 patients (34.4%). Whereas in group II recurrence was observed in 124 patients (20.7%). In group I symptoms of repeated haemorrhage were slightly more often in

Table 2. Etiology of bleeding in the I and II group

Grupa	Number of patients	Etiology of bleeding				
		duodenal ulcer	gastric ulcer	hemorrhagic gastritis	Mallory-Weiss tear	others
I	61	28 (45,9%)	18 (29,5%)	9 (14,8%)	6 (9,8%)	-
II	1150	339 (29,5%)	259 (22,5%)	192 (16,7%)	130 (11,3%)	230 (20%)
Total	1211	367 (30,3%)	277 (22,9%)	201 (16,6%)	136 (11,2%)	230 (18,9%)

Table 3. Etiology of bleeding in the group I according to the indication for hospital admission

Indication for admission	Number of patients	Etiology of bleeding			
		duodenal ulcer	gastric ulcer	hemorrhagic gastritis	Mallory-Weiss tear
Trauma	25	15 (53,6%)	6 (33,3%)	2 (22,2%)	2 (33,2%)
Peritonitis	11	3 (10,7%)	4 (22,2%)	3 (33,3%)	1 (16,6%)
Acute pancreatitis	10	5 (17,8%)	4 (22,2%)	-	1 (16,6%)
Gall-bladder diseases	8	4 (14,3%)	2 (11,1%)	-	2 (33,3%)
Lower extremity ischemia	4	1 (3,6%)	1 (5,5%)	2 (22,2%)	-
Colonic cancer	3	-	1 (5,5%)	2 (22,2%)	-
Total	61	28 (45,9%)	18 (29,5%)	9 (14,8%)	6 (9,8%)

women than in men. Average age of patients equalled 69.7 years old. Within this group bleeding recurrence was related with high death rate. It amounted to 76.2%. In group II the recurrence occurred much more often in men than women. Average age was 59.8 years old. Death rate equalled 14.6%.

In both groups co-existing diseases were often observed. In patients from group I co-existing diseases were diagnosed in 53 patients (86.8%). In 30 patients (56.6%) they were heart-vascular diseases, in 5 (9.5%) respiratory system diseases, and in 3 patients (5.6%) other diseases (diabetes, neurological diseases). 15 patients (28.3%) were diagnosed with more than one existing disease. In group II co-existing diseases occurred in 690 patients (60%). In 314 patients (45.5%) they were heart-vascular diseases, in 108 (15.6%) respiratory system diseases, and in 127 patients (18.4%) other diseases (diabetes, neurological diseases). 141 patients (20.5%) were diagnosed with more than one existing disease.

Group I was also characterized with high percentage of people taking proton pump blockers in a preventive manner. This was particularly true as far as intensive care unit patients are concerned.

Due to efficient endoscopic therapy only a small number of patients required emergency surgical procedures. In group I 6 patients underwent surgery (9.8%), and in group II – 33 (5.51%).

26 patients from group I died. Death rate amounted to 43%. The highest death rate was observed in patients on intensive care unit – 60% (9 patients). In group II 99 patients died. Death rate – 8.62%. (tab. 4). Main reason of death in group I was developing organ insufficiency, resulting from haemorrhage, within systems previously burdened with various diseases, especially in elderly persons.

DISCUSSION

Bleeding into the lumen of the upper segment of the alimentary tract, which occurs

during hospitalisation due to other reasons, is related with bad prognosis. In all available publications related with this group of patients, authors report a death rate reaching 34-36% (8-12). Majority of deaths is not caused by the sole bleeding, but by simultaneous exacerbation of co-existing diseases. Similar results were also observed in our study. Death rate in the whole group amounted to 43%. The greatest number was reported on intensive care unit – 60%.

In his thesis, Trediman and Ostroff states that the most common causes of bleeding in patients hospitalised due to other reasons included gastric and duodenal ulcers (8). Duodenal ulcer occurred in 36%, and gastric ulcer in 10% of patients. Duodenal ulcer was also the most common cause of haemorrhage in this group of patients in our study – 49.2%. Other authors also report similar results (9, 10, 11). It is worth emphasizing that these theses are related with patients hospitalised on internal ward. In our thesis we have presented patients hospitalised in surgery clinic.

Within the group of our patients hospitalised due to other reasons, bleeding usually occurred on the 14th day of the stay at the hospital. J. Trediman and Ostroff observed a similar tendency. In the group of patients he studied, haemorrhage usually occurred around the 14th day of hospitalisation (8).

This author analysed the occurrence of *H. pylori* infection in patients with ulcer disease. He compared two groups of patients. One of them covered patients admitted to hospital due to bleeding from the ulcer. Positive test confirming the presence of *H. pylori* infection within this group equalled 14%. The second group included patients, in case of whom bleeding occurred during hospitalisation. In these patients *H. pylori* infection occurred much more often. Proportion of positive tests amounted to 62%. Additionally, administering of non-steroid anti-inflammatory drugs was analysed. 48% of patients admitted due to haemorrhage used these preparations. Within the group of patients, who suffered from bleeding during their stay in the hospital, this rate was higher and equalled 68%. Therefore it seems that other factors, apart from *H. pylori* infection, play a crucial role in etio-pathogenesis of ulcers in patients with haemorrhage occurring also during hospitalisation. Many authors emphasize the stress causing

Table 4. Mortality in groups I and II

Group	Number of patients	Mortality
I	61	26 (43%)
II	1150	99 (8,62%)

impairment of cytoprotective functions of gastric and duodenal mucous membrane (13, 14, 15).

Patients, in case of whom bleeding occurred during the stay at the hospital, are characterised with bad prognosis. This is proved not only by increased death rate, but also by the risk of haemorrhage recurrence. In our material, recurrence was observed among 34.4% of patients who suffered from haemorrhage during hospitalisation. It concerns mainly elderly people. Average age was 69.7 years old. The death rate was also higher in this case – 76.2%. Whereas in the group of patients admitted because of haemorrhage recurrence was observed in 20.7% of them. These patients were much younger. Average age was 58.9 years old, and the death rate equalled 14.6%. It is worth emphasizing that in both groups the death rate in case of haemorrhage recurrence was higher when compared with general death rate within these groups. Other authors report similar data (8-11).

What is also interesting is the problem of haemorrhage prophylaxis used particularly in patients of intensive care units. Currently proton pump blockers are used. Additionally, H₂ receptor blockers and sucralfate are used. The use of these medicines does not prevent

haemorrhage. This is related mainly with intensive care unit patients. Respiratory failure with the necessity to perform artificial ventilation and coagulopathy (13-16). Available data prove that currently used haemorrhage preventing methods are not fully efficient (13, 14, 15, 17, 18). Further studies should provide an answer to the question, which patients are exposed to the highest risk of haemorrhage and what kind of prophylaxis shall be the most appropriate one for them. The above is related not only with intensive care units.

CONCLUSIONS

1. Bleeding from the upper segment of the alimentary tract is a noteworthy complication in treating acute surgical diseases, and endoscopy is an efficient method of diagnosing their origin.
2. Group of these people, despite original endoscopic control of haemorrhage is highly endangered with its recurrence.
3. In these cases recurrence of haemorrhage is burdened with increased death rate, therefore these patients require particularly intensive supervision until achieving complete healing of the basic disease.

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