MANAGEMENT OF NON-VARICEAL UPPER GASTROINTESTINAL BLEEDING – AN EXPERIENCE OF THE EMERGENCY UNIT AND OF THE REGIONAL EMERGENCY CLINICAL HOSPITAL OF MUREŞ

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Abstract: *Upper gastrointestinal bleeding (UGIB) is defined as the bleeding occurring between the upper esophageal sphincter and the angle of Treitz. Upper gastrointestinal bleeding is the most frequent gastroenterological emergency and requires the deployment of a multidisciplinary team for an optimum management aimed at saving the patient's life and at the rational management of the therapeutic means. The experience of the Emergency Unit of the Regional Emergency Clinical Hospital of Mure in diagnosing and managing the upper gastrointestinal bleeding is based on more than 300 cases every year; the experience is doubled by the alignment with the national and international therapeutic guidelines and by the existence of a team specially trained to manage such pathology, involving practitioners in emergency medicine, gastroenterology, surgery, anaesthesia and intensive care. The algorithm for managing this emergency is presented in several successive steps, which optimize the outcome of the patient and lead to a rational management of resources.*

Cuvinte cheie: *hemoragie digestivă, management*

Rezumat: *Hemoragia digestivă superioară (HDS) este definită ca hemoragia care se produce la nivelul segmentelor digestive situate între sfincterul esofagian superior i ligamentul lui Treitz. Hemoragia digestivă superioară reprezintă urgena gastroenterologică cea mai frecventă i necesită mobilizarea unei echipe pluridisciplinare pentru un management optim având drept scop principal salvarea vieii pacientului i gestionarea raională a mijloacelor terapeutice. Experiena Unitării de Primire Urgene, Spitalul Clinic Regional de Urgen Mure în diagnosticul i tratamentul hemoragiilor digestive superioare este bazată pe gestionarea unui număr de peste 300 hemoragii digestive superioare non-variceale anual, experien dublată de alinierea la ghidurile terapeutice naionale i internaionale i de existena unei echipe antrenate în gestionarea acestei patologii, care cuprinde medici specialiti în medicină de urgen ,gastroenterologie, chirurgie, anestezie i terapie intensivă. Algoritmul de management al acestei urgene gastroenterologice este prezentat în mai muli pai succesivi, care optimizează prognosticul pacientului i duc la o bună gestionare a resurselor.*

The non-variceal upper gastrointestinal bleeding is the most common and severe gastroenterological emergency whose management relies on the coordinated effort of a large multidisciplinary team.(1,2,3)

The approach of the patient with non-variceal upper gastrointestinal bleeding

The initial contact with the patient is made in the Emergency Unit, which is provided with all the required facilities for first aid, risk stratification, vital signs monitoring and interdisciplinary consulting.(3) The first steps applied in the Emergency Unit are those that involve the classical A, B, C of the critical patient, adapted to the digestive pathology. These are: vital signs examination: airways' protection, oximetry, blood gases, hemodynamic status, heart activity and blood pressure monitoring, physical examination, placement of two large-bore peripheral venous (14-16 Gauge catheters) or/and a central venous catheter, blood sampling and other laboratory tests, oxygen therapy if needed. Orotracheal intubation in patients with risk of aspiration or hypoxemia should also be taken into account. Volemic adjustments with crystalloid or colloidal solutions according to the 3/1 rule (3 ml crystalloid for 1 ml blood lost). Hematologic resuscitation by transfusion of blood products - blood, plasma, platelet concentrate – indicated in a drop of the haematocrit level below 30% or of platelet levels below 50,000/mm^3. Administration of intravenous proton pump inhibitors in 80 mg bolus and then 8 mg/h. Continuous infusion.(4) Mounting a suction nasogastric lavage tube; as the case may be, we may start blood evacuation or gastric lavage with crystalloid solutions at room temperature. Application of endoscopy guard service and intensive therapy, if appropriate. In particular cases, the surgical advice may be needed. Taking a good medical history either from the patient or relatives, exhaustive physical examination (hints on NSAIDS induced pathology, liver cirrhosis, comorbidities, duration, quantity and the circumstances of blood loss), local and general hygiene of the patient.(3,5,6)

All of these diagnostic gestures can be performed concurrently by the emergency unit (EU) team, the sequence being dictated by the condition of the patient and by a good clinical judgment. In very mild clinical forms, only some of the measures are necessary. Obtaining the medical consent from the

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patient, or relatives, or if not possible assuming the responsibility for all the medical gestures by the heads of the medical teams is utterly important.(6)

Upper digestive endoscopy in non-variceal upper gastrointestinal bleeding

Upper digestive endoscopy is the golden standard of diagnosis and therapy in the non-variceal upper gastrointestinal bleeding. Upper digestive endoscopy provides the most important diagnostic information, allows endoscopic haemostatic procedures, and conveys data on risk stratification for rebleeding or death, with major implications on the level of nursing needed in the following stages.(2,5)

Endoscopic Forrest score and Rockall score are extremely useful in assessing the risk of rebleeding and death rate and lead to establishing the best therapeutic postendoscopic behaviour.(7)

The indication for upper digestive endoscopy is firm in all cases of non-variceal upper gastrointestinal bleeding, observing the contraindications of the method or the technical inability to carry it out.(2,3)

Upper digestive endoscopy should be performed as soon as possible after hemodynamic resuscitation and a good gastric lavage, if possible. Timing of endoscopy should not exceed 16 hours, which is to be taken into account only when there are no facilities for endoscopy in the proximity of the Emergency Unit.(6)

Diagnostic and therapeutic upper endoscopy should be performed by a practitioner with experience in this pathology. Endoscopy should be available 24 hours a day, 7 days a week.

The patient's transportation from the Emergency Unit to the Endoscopy Unit will be made on stretcher and will be accompanied by an emergency medicine doctor, a medical assistant with facilities for monitoring the vital functions, oxygen therapy and cardiopulmonary resuscitation. The endoscopist must be assisted by an endoscopy assistant and a medical assistant with superior training.(6)

The patient with upper gastrointestinal bleeding is assisted by the intensive care or emergency medicine doctor and a nurse, which monitors the vital functions, ensures continuous resuscitation, analgesia or sedation of the patient.

Endoscopic haemostasis

Duodenal and gastric ulcer. Endoscopic haemostasis is indicated in the Forrest Ia, Ib , IIa, IIb ulcers. With regard to Forrest IIb ulcer, washing or mechanical clot removal is important, although controversial, because it can reveal a Forrest Ia or Ib a lesion. The haemostasis method used is up to the endoscopist: injection with adrenaline 1/10 000 or saline solution, preferably with a large volume, of 20 ml; bipolar coagulation, thermocoagulation, application of haemostatic clips, the larger the better. The endoscopist can take advantage of his personal experience and facilities to use rotatable clips, reopenable resolution clips, triclips with good mural penetration, multiclip applying devices; argon-plasma coagulation (APC) is useful in vessels of less than 1 mm in diameter; combined hemostasis can give good results, sometimes better than one single method; often it is the result of successive hemostatic failed attempts.(6,8,9,10)

Dieulafoy ulcer. Epinephrine injection is followed by thermocoagulation or bipolar coagulation; haemostatic large clips; elastic ligature of the lesion after suction; tattooing the lesion is to be taken into account.(11,12)

Haemorrhagic gastritis. Gastric washing, proton pump inhibitors therapy and control of risk factors are in 90% of cases sufficient; larger lesions may benefit from therapy by injection, electrocoagulation, APC.(6,8)

Mallory-Weiss Syndrome. The differential diagnosis with Boerhaave syndrome should be taken into consideration and if needed, iodine contrast solution will be ingested to identify exteriorization in the mediastinum or pleura. In this case, the treatment is surgical because the lesion is transmural. The treatment in this case may also be conservative by injection or clipping and by pleural drainage. Endoscopic haemostasis in Mallory Weiss syndrome is achieved by injection of saline or epinephrine 1/10000, large volumes. If we suspect portal hypertension, sclerotherapy may be more useful; if the case may be, we can use thermocoagulation or electrocoagulation.(6,8,13)

Angiodysplasia: it benefits from APC, thermocoagulation, electrocoagulation, injection therapy.

Gastric cancer. In order to avoid an emergency surgery, endoscopic haemostasis is recommended, similar to the duodenal or gastric ulcer.(6,8)

Failure to identify the injury is followed by a series of measures: a good gastric lavage and a new endoscopy; differential diagnosis with haemorrhage from the field of ear-nose-throat (ENT), differential diagnosis with lower digestive haemorrhage, particularly of the intestinal tract, should be considered.(3,8)

Post-endoscopic care course

If the endoscopic haemostasis is effective, the treatment of the injury is conservative. The patients with a Rockall score below 3 have a low risk of rebleeding and should be admitted to the gastroenterology unit. Feeding is allowed in low-risk lesions after 24 hours and in high-risk lesions after 72 hours (Forrest Ia,Ib).(2,3,6,14)

Those with higher scores are candidates for admission in intensive therapy units, especially if various comorbidities are present.(2,3,6)

Rebleeding is a good indication for a newer attempt of endoscopic therapy, having similar efficiency to surgery.(3,8) Its failure involves transfering the patient to a surgical service. Endoscopic imaging documentation, marking the level of the injury with clips or tattooing represent the premise for a minimal invasive surgery.(15)

The existence of a multi-disciplinary team, an appropriate material basis and monitoring the therapeutic guidelines in force are the prerequisites for a correct management of the non-variceal upper digestive bleeding.

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