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Alimentary Tract

Pitfalls in the reporting of upper endoscopy features in cirrhotic patients

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ABSTRACT

Background: Upper endoscopy is the main tool for the accurate assessment of the risk of bleeding in cirrhotic patients.
Aim: To evaluate the diagnostic accuracy of upper endoscopy, in cirrhotic subjects, during common clinical practice.
Methods: 120 endoscopic reports produced in different hospitals in our region were retrospectively and randomly selected. After a general evaluation, aimed at assessing the description of various endoscopic features, reports were evaluated by four expert endoscopists and four expert hepatologists. Experts were asked to fill in a questionnaire for each single endoscopic procedure, regarding the diagnostic accuracy of the report.
Results: Endoscopic reports lacked descriptions of the size of esophageal varices and red signs in 14% and 29% of cases respectively. Presence (or absence) of gastric varices or portal hypertensive gastropathy were not reported in 62% and 34% of cases respectively. According to expert endoscopists 41% of the reports were incomplete, while, according to hepatologists, reports were incomplete and inadequate for clinical purposes in 36% of cases.
Conclusion: Our study clearly evidenced a significant lack of information in reports on upper endoscopy in cirrhotic patients, and supports the prompt adoption of corrective strategies.
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Portal Hypertension (PH) is generally considered an early and principal consequence of liver cirrhosis [1]. The condition is determined by: i) increased resistance to portal flow and ii) greater inflow through the portal vein. PH is also the root of a series of complications associated with liver disease, such as ascites, hepatic encephalopathy and variceal hemorrhage [2]. Varices in the esophagus and stomach may develop, together with portal hypertensive gastropathy, as a response to increased portal pressure and in order to return blood to the right side of the heart through the collateral vein [3]. Around 50% of cirrhotic patients have gastro-esophageal varices (GEV) with a prevalence that may vary according to a compensated or decompensated stage of the disease. Presence of GEV in cirrhotic patients predisposes to 12% annual risk of significant bleeding, a 60% annual risk of re-bleeding after a first episode, and to a 20% risk of mortality for any hemorrhagic episode. This prognosis, however, varies according to variceal features and severity of liver disease. The first attempt to classify GEV using endoscopy dates back to more than fifty years ago [4] and despite the advent of non-invasive methods (such as transient elastography or biochemical markers) to rule out the presence of GEV in cirrhotic patients, recent guidelines have confirmed endoscopy as the only method to accurately assess GEV features and to estimate the individual risk of bleeding in patients [5]. Several endoscopic classifications have been developed to predict risk of bleeding from esophageal varices [6–12]. However, starting from the late 80s it became clear that two major endoscopic findings are the best indicators of a significant risk of bleeding: the size of the varices (small or large) and the presence of red signs (i.e. red wale marks, cherry-red spots, hematocystic spots) [1,3,4,10].

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There are also other endoscopic findings associated with both PH and upper gastro-intestinal (GI) bleeding, for example, gastric varices and portal hypertensive gastropathy. Their endoscopic description, however, remains more personal and classification less specific with reduced predictive value for bleeding. Nonetheless, endoscopy remains an important tool to detect the presence or absence of these PH-related pathological features.

Given the importance of upper gastro-intestinal (GI) endoscopy in assessing the presence of portal hypertension, its related features and consequent bleeding risk, we evaluated the diagnostic accuracy of this procedure in cirrhotic patients admitted to our unit (Liver Unit, University of Rome "Tor Vergata") and referred from various different regional hospitals. The quality of endoscopic reports was retrospectively evaluated by expert endoscopists and clinical hepatologists.

1. Methods

One hundred and twenty reports on endoscopies performed in different hospitals in our region (Lazio region, Rome area) were randomly selected. After a general evaluation of the reports, aimed at recording the frequency and description of portal hypertension findings, these were submitted for evaluation (in anonymous form) to four expert endoscopists, (working closely with a liver unit, over 100 upper GI examinations in cirrhotic patients/year), and to four expert clinical hepatologists (over 10 years of activity in a Liver Unit). The experts were required to fill in a separate questionnaire for each report. According to the questions, the expert endoscopists evaluated the quality of the report as: "incomplete", "sufficient" or "good" on the basis of the description of esophageal varices, gastric varices and portal hypertensive gastropathy, respectively. A final evaluation of the report was also included, classifying the procedure as "incomplete", "sufficient" or "good". The evaluation by clinical hepatologists included an overall assessment of the report ("incomplete", "sufficient" or "good"). In addition, the adequacy of the report for the purpose of reaching a medical decision was also evaluated. Agreement between experts (either in the endoscopist or the hepatologist group) was more than 80% at baseline and 100% after consultation. The nature of the retrospective study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki (6th revision, 2008) and was submitted and approved by our local ethics committee.

2. Statistics

A total of 960 questionnaires were analyzed, including more than 5000 opinions on different aspects of the endoscopic reports. Data were stored and analyzed using the IBM SPSS software package (Armonk, NY). Data were expressed as percentages.

3. Results

3.1. General evaluation of reports

All endoscopic reports evaluated the presence or absence of esophageal varices (esophageal varices were present in 97% of the reports, absent in 3% of the reports). The size of the varices was described in 86% of the reports (F1, F2 and F3 respectively in 39%, 37% and 10% of reports). Presence or absence of variceal red signs was evaluated in only 71% of procedures (and red signs were present in 17% and absent in 54% of reports). Gastric varices were mentioned in 38% of cases (present in 4% and absent in 34% of cases). The remaining reports (62% of cases) made no mention of their evaluation. Size of gastric varices was never reported while their location in the stomach was described in 2% of the procedures. Portal hypertensive gastropathy was described in 66% of the reports (present in 59% and absent in 7%), while it was omitted in 34% of the reports. The gastric distribution of portal hypertensive gastropathy was described in 79% of cases (respectively in 58% of cases diffused to the entire stomach, in 13% at the gastric antrum, in 2% at the gastric body and in 6% at the gastric fundus), while it was omitted in 21% of the reports. The degree of portal hypertensive gastropathy was described in 42% of the reports (mild in 21%, moderate in 8% and severe in 13%) and it was not described in 58% of cases. The main results are summarized in Fig. 1.

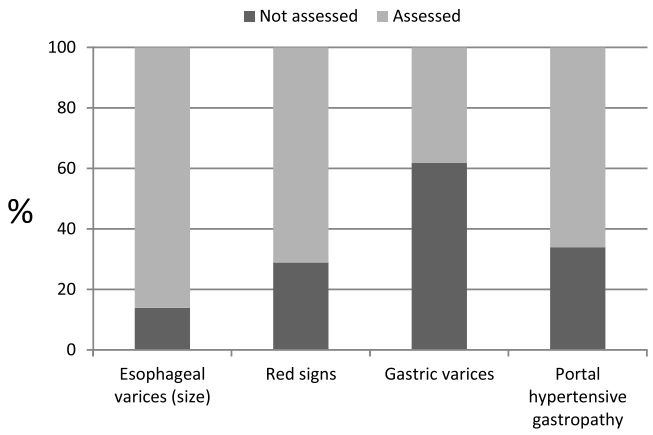

Fig. 1. General evaluation of upper endoscopy reports (n 120 cirrhotic patients). The graph depicts the percentages in which relevant endoscopic features were assessed.

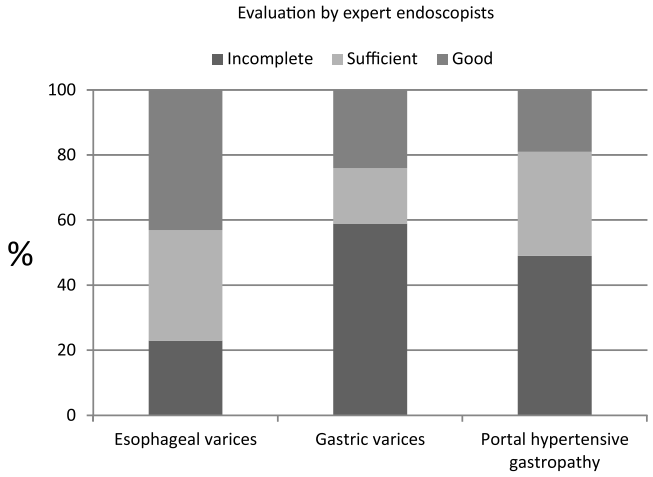

Fig. 2. Evaluation of upper endoscopy reports (n 120 cirrhotic patients) by expert endoscopists. The graph depicts, in percentages, the quality of the description (incomplete, sufficient, good) of main endoscopic findings.

3.2. Evaluation of reports by expert endoscopists

Expert endoscopists mainly evaluated adherence of endoscopic reports to currently adopted classification systems. In describing features of esophageal varices, reports were considered incomplete, sufficient or good in 23%, 34% and in 43% of cases, respectively. The evaluation of gastric varices was incomplete, sufficient or good respectively, in 59%, 17% and 24% of the reports. The description of portal hypertensive gastropathy was classified as incomplete, sufficient or good respectively, in 49%, 32% and 19% of the reports. Finally, the overall quality of the report was evaluated by the endoscopists as incomplete, sufficient or good respectively in 41%, 40% and 19% of cases. Results are summarized in Fig. 2.

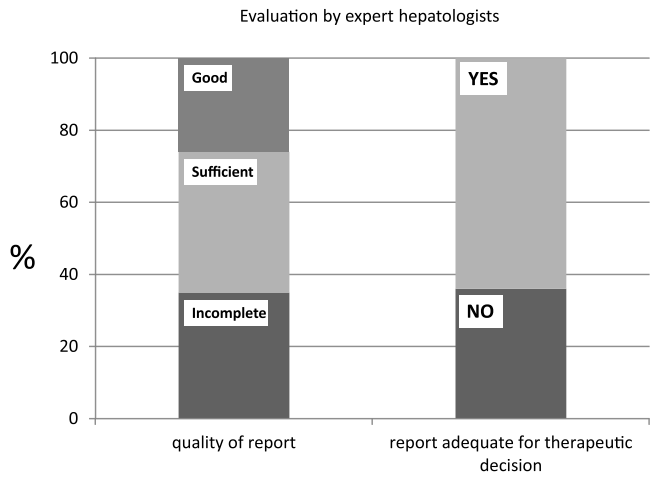

Fig. 3. Evaluation of upper endoscopy reports (n 120 cirrhotic patients) by expert hepatologists. The graph depicts, in percentages, the quality of the reports and their adequacy for clinical purposes, as judged by hepatologists.

3.3. Evaluation of reports by clinical hepatologists

The overall quality of the reports was evaluated by the hepatologists as incomplete, sufficient or good respectively in 35%, 39% and 26% of cases. Furthermore, according to the hepatologists, the quality of the report was adequate for making therapeutic choices in 64% of cases only. Results are summarized in Fig. 3.

4. Discussion

Upper GI endoscopy represents a key tool in the management of portal hypertension related hemorrhage and in the prophylaxis or treatment of acute bleeding. While, starting from the late 90s, studies indicated overuse of GI upper endoscopy in the general population [13,14], on the other hand screening for gastroesophageal varices is under-implemented and not adherent to guidelines for cirrhotic patients [15,16]. The latter finding is a source of concern considering that portal hypertension related GI bleeding is a major lethal complication of cirrhosis with a 1 year incidence of roughly 20% for the first episode and 60% incidence of recurrence. In addition, mortality represents a fairly frequent outcome, accounting for 20% of cases in the first 6 weeks after a bleeding episode. While non-invasive methods, such as transient elastography, are gaining importance to rule out the presence of large varices in patients with liver stiffness (<20 kPa coupled with a platelet count >150.000), for the remaining patients upper GI endoscopy remains the most accepted method, both for initial screening and surveillance on a 2 year basis [5]. However, endoscopy is a tool which requires subjective interpretation, and not only in the case of the GI tract [17,18] but also for other organs [19]. In this perspective we sought to evaluate the diagnostic accuracy of upper GI endoscopy for the staging of portal hypertension, in cirrhotic patients admitted to our liver transplantation centre. This "real world" research highlighted several important issues, denoting an unsatisfactory diagnostic accuracy of upper GI endoscopy in cirrhotic patients in our geographic area. First of all, a general evaluation of endoscopic records evidenced: i) limited reporting of esophageal varices red signs; ii) and under-reporting of both gastric varices and portal hypertensive gastropathy. An appropriate description of these features is critical since they are directly linked with bleeding risk in cirrhotic patients. In addition, the failure to report red signs (in roughly one third of cases) is difficult to justify, since the latter are considered the most important endoscopic stigmata of bleeding risk, together with variceal size [10,20]. From these observations it is reasonable to conclude that in a significant proportion of gastroscopies the procedure was mainly aimed at evaluating variceal size.

The evaluation by expert endoscopists gave similar results. In fact, the assessment of esophageal varices, gastric varices and portal hypertensive gastropathy was considered insufficient in 23%, 59% and 49% of cases, respectively.

The last part of our research focused on the opinion of clinical hepatologists. This was included since hepatologists: i) are the main prescribers of endoscopy and the final recipients of endoscopic reports in the case of cirrhotic patients; ii) they pursue clinical information from a different point of view to endoscopists; iii) they are in charge of making clinical decisions on the basis of endoscopic results.

Not surprisingly, the hepatologists were unable to make a clinical decision on the basis of the endoscopic report in more than one third of cases. So, while other authors have demonstrated (as mentioned above) an underuse of endoscopy in cirrhotic patients, our study, on the other hand, also shows that nearly one third of cirrhotic subjects receive an endoscopic report which is not useful for clinical purposes and very frequently lacking in the description of important endoscopic features, such as gastric varices and portal hypertensive gastropathy.

These unsatisfactory results deserve consideration and should stimulate the adoption of corrective measures. Two possible strategies to increase the diagnostic accuracy of upper GI endoscopy could be: i) further education and retraining of endoscopy personnel and/or ii) a system relying on a centralized endoscopy assessment for cirrhotic patients. The latter approach is in fact something that has already been proposed for other GI disorders, such as Crohn's disease. In this inflammatory bowel disease the variability in lesion interpretation and classification by different observers has been recognized as an important factor for potential bias in clinical management and research. This concern has prompted the proposal for a possible referral of patients to a specialized centre and/or assessment of the endoscopic videos by experts, thus overcoming the issue of interpretation by a local physician [21].

Another measure, at least in terms of the evaluation of esophageal varices, may also derive from the adoption of a simplified endoscopic classification. Since two main endoscopic features of esophageal varices have been recognized as a predictors of bleeding (size of varices and presence of red signs) an endoscopic report aimed specifically at covering these aspects could be more easily produced and interpreted in routine clinical practice. However, this approach would require acceptance by different physicians and may entail further educational programs.

A potential limit of our study is that it relays, in some part, on personal and possibly arbitrary evaluations by experts. The main objective of our investigation, however, was to bring in light the issue of appropriateness of endoscopy report in cirrhotic patients in a "real life" setting. The clear definition of the minimal standard criteria in reporting upper endoscopy of cirrhotic patients was beyond the scope of our study and remains to be established in details and widely accepted by health professional and the scientific community. This would be an important step for future clinical and research activities in this field.

Conflict of interest

None declared.

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