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EDITORIAL

- 6754** Update on the aetiopathogenesis of obstructive sleep apnea: Role of inflammatory and immune mediated mechanisms
Nag DS, Varghese K, Swain A, Patel R, Sahu S, Sam M
- 6760** Intensive care unit-acquired weakness: Unveiling significant risk factors and preemptive strategies through machine learning
He XY, Zhao YH, Wan QW, Tang FS
- 6764** Advancing oral cancer care: Insights from Tongluo Jiedu prescription
Cheng CY, Hao WR, Liu JC, Cheng TH
- 6770** Effects of atrial septal defects on the cardiac conduction system
Kang JH, Wu HY, Long WJ
- 6775** Periodontitis and chronic kidney disease: A bidirectional relationship based on inflammation and oxidative stress
Martínez Nieto M, De Leon Rodríguez ML, Anaya Macías RDC, Lomeli Martínez SM
- 6782** Cytokine release syndrome induced by anti-programmed death-1 treatment in a psoriasis patient: A dark side of immune checkpoint inhibitors
Maldonado-García JL, Fragozo A, Pavón L

REVIEW

- 6791** Acellular dermal matrices in reconstructive surgery; history, current implications and future perspectives for surgeons
Dilek ÖF, Sevim KZ, Dilek ON

ORIGINAL ARTICLE**Retrospective Study**

- 6808** Comprehensive epidemiological assessment of trauma incidents at a level I trauma center
Su ZY, Wei H, Wang WN, Lin YF, He YL, Liu Y, Lin RB, Liu YT, Michael N

SYSTEMATIC REVIEWS

- 6815** Gut microbiota changes associated with frailty in older adults: A systematic review of observational studies
Wen NN, Sun LW, Geng Q, Zheng GH

CASE REPORT

- 6826** *psk1* virulence gene-induced pulmonary and systemic tuberculosis in a young woman with normal immune function: A case report
Wu F, Yang B, Xiao Y, Ren LL, Chen HY, Hu XL, Pan YY, Chen YS, Li HR
- 6834** Rare primary gastric peripheral T-cell lymphoma not otherwise specified: A case report
Jang HR, Lee K, Lim KH
- 6840** Cat scratch disease in children with nocturnal fever: A case report
Yin QL, Liu YQ, Zhang HM, Zhang YL, Qi SM, Wen JQ, Zhang WH

LETTER TO THE EDITOR

- 6848** Understanding network meta-analysis
Au SCL
- 6851** Effects of foot reflexology on disease
He MY, Ud Din MJ, Xu HF, Wang SY, Ying GH, Qian H, Wu B, Qi HD, Wang X, Zhang G
- 6855** Clinical landscape and treatment of acute non-variceal upper gastrointestinal bleeding: Insights from a high-volume center in Shaanxi, China
Improta L
- 6859** Role of high-dose amoxicillin dual therapy for *Helicobacter pylori* eradication in an Irish cohort: A prospective study
Palmirotta R, Cafiero C, Colella M

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Clinical landscape and treatment of acute non-variceal upper gastrointestinal bleeding: Insights from a high-volume center in Shaanxi, China

Luca Improta

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Abstract

In this editorial we comment on the article by Wang *et al*, recently published on *World Journal of Clinical Cases*. Acute non-variceal upper gastrointestinal bleeding (ANVUGIB) represents a common and potentially serious gastroenterological emergency. Wang *et al* conducted a detailed study on the management of ANVUGIB in a high-volume center in the Shaanxi region, China. Analyzing data from over 530 patients provided a comprehensive overview of clinical, epidemiological, and treatment characteristics. Results highlighted a younger patient population compared to European studies, with a higher prevalence of gastric and duodenal ulcers as the leading cause of bleeding. Endoscopic treatment is currently the preferred therapeutic option, offering a variety of effective techniques. This study emphasizes the importance of implementing current guidelines in ANVUGIB management and highlights the crucial role of endoscopy in its management.

Key Words: Upper gastrointestinal bleeding; Gastroenterological emergencies; Endoscopic treatment; Epidemiological characteristics; Clinical characteristics

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Core Tip: Wang *et al* investigated acute non-variceal upper gastrointestinal bleeding management in a high-volume center in Shaanxi, China, revealing a younger patient demographic and a higher prevalence of gastric and duodenal ulcers as leading causes of bleeding compared to European studies. Endoscopic interventions emerged as the preferred therapeutic approach, emphasizing the importance of adhering to current guidelines and highlighting the pivotal role of endoscopy in treatment strategies.

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TO THE EDITOR

Acute non-variceal upper gastrointestinal bleeding (ANVUGIB) certainly represents the gastroenterological emergency most frequently encountered by physicians in the emergency department. Despite the enormous progress made in the prevention and treatment of this condition over the last 50 years, and despite a gradual reduction in its incidence, ANVUGIB remains a challenging condition, still related to a non-negligible mortality rate. The most common cause of ANVUGIB is bleeding from gastric mucosal lesion, gastric and duodenal ulcers, while malignant disease is more frequent in the elderly[1,2].

The approach to ANVUGIB is described in detail by various validated international guidelines. An accurate stratification of patients upon presentation is crucial. Hemodynamic stabilization of patients in shock or pre-shock state is paramount, as is red blood cell transfusion in severely anemic patients. Subsequently, endoscopy should be performed within 24 hours of onset to promptly address all active sources of bleeding and high-risk lesions. There are multiple options for endoscopic treatment, with a success rate exceeding 90%. Currently, the most studied and practiced treatments are mechanical (application of endoscopic clips at the bleeding site) and thermal (diathermy coagulation, contact coagulation, or argon plasma coagulation), while more costly but promising are local treatments with the application of hemostatic materials. In case of recurrent bleeding, endoscopy remains the most effective therapeutic option, while in cases of endoscopic hemostasis failure and inability to achieve effective hemostasis, embolization or surgery remain valid alternatives[3-7].

The treatment of ANVUGIB in elderly patients with comorbidities is particularly complex and burdened by worse outcomes. These patients often present frailty due to pre-existing cardiovascular or pulmonary condition, and bleeding is frequently induced by chronic anticoagulant, antiplatelet, or anti-inflammatory therapies, or sometimes by unrecognized oncological pathology, or a combination of these factors. In these patients, even promptly treated ANVUGIB can be a disruptive first event in an already precarious balance[8-10].

In this scenario, it is crucial for the physician to be aware of both the epidemiological landscape of the area and the therapeutic options available to address this challenging condition.

In this issue of the Journal, Wang *et al*[11] describe and critically analyze the experience gained between 2021 and 2023 in ANVUGIB treatment at a high-volume center in the Shaanxi region of central China[11]. The authors meticulously delve into the clinical, epidemiological, and treatment characteristics of over 530 patients presenting with a final diagnosis of ANVUGIB, providing a significant snapshot of the clinical landscape in which they operate.

From the reading of Wang *et al*[11] work, several interesting considerations emerge. Firstly, it is interesting to note that, compared to European and North American statistics, the average age of patients diagnosed with ANVUGIB is lower in Wang *et al*[11] study. In the main studies published since the 1990s in Europe, the average age of patients at presentation is typically between 65 and 70 years, compared to the 53 years reported in the aforementioned study[12-14]. Moreover, when comparing recent studies with older historical series, a progressive and steady increase in the average age of patients can be observed[15,16]. This observation can partly be explained by several factors: The increasing average age of the population, the introduction of drugs effectively preventing gastric and duodenal ulcers—such as H2 receptor agonists in 1982 and proton pump inhibitors in 1990 the implementation of screening and treatment protocols for *Helicobacter pylori* infections, and the higher prevalence of chronic treatments with anticoagulants and aspirin in the elderly population.

While these factors have certainly had a global impact, it is important to consider that significant geographical differences persist. In Europe, for example, the average age of the population is itself significantly higher than in China, with a secondary direct impact on the total number of patients receiving anticoagulant and antiplatelet treatments. However, this single observation is not sufficient to justify the significant geographical difference found. Various studies explored genetic polymorphisms related to an increased risk of ANVUGIB, identifying several mutations affecting key molecular pathways governing platelet aggregation, inflammation, and angiogenesis[17]. It cannot be ruled out that such mutations may cluster in specific geographic regions, driving distinct epidemiological differences. It would be interesting to further explore with additional studies what population differences are involved and whether genetic polymorphism, lifestyle habits, dietary factors, or different healthcare policies are implicated.

Regarding etiology, it is known that historically the most common cause of ANVUGIB has been gastric and duodenal ulcers, which accounted for more than 40% of bleedings until the 1970s[15,18]. The temporal trend, also influenced by the introduction of effective medical treatments, has led to a progressive reduction in the incidence of this pathology, which is currently diagnosed in 20%-30% of patients[14]. Increasingly, the causes of ANVUGIB appear to be gastric and duodenal erosions, hemorrhagic gastritis, and other stress-related mucosal abnormalities, grouped under the definition of "mucosal abnormalities"[19]. Wang *et al*[11] describe the different causes of upper GI bleeding and find a prevalent incidence of gastric, duodenal, or complex ulcers except in elderly patients, where oncological pathology is the most frequent diagnosis. Interestingly, a new cause of ANVUGIB appeared in the literature since the implementation of ESD/EMR techniques as a complication of these procedures, although its systematic description and incidence is unclear, and we eagerly await further studies[20]. However, technological progress has laid the foundation for the current affirmation

of endoscopy as the treatment of choice in all cases of ANVUGIB.

Since the early experiences of hemostasis using high-frequency coagulation described by Hiratsuka in the early 1970s, endoscopic treatment has shown the potential to become the treatment of choice for ANVUGIB. In the following years, new treatments such as laser coagulation or heating probes and clips mechanical hemostasis have been described and widely adopted worldwide[21-23]. These treatments have immediately demonstrated efficacy rates exceeding 90%, with the added benefit of ensuring faster recovery and significantly lower complication rates compared to surgery[24]. Currently, several endoscopic treatments have been validated and, supported by robust scientific evidence, have been incorporated into all current international guidelines, constituting the present cornerstone of treatment[3-7]. Literature data confirm efficacy in controlling bleeding approaching 90%, regardless of the chosen method, and we can hope that the possibilities of endoscopic treatment will continue to grow with technological progress and the validation of new tools. Recently, over-the-scope clips, initially designed for endoscopic treatment of fistulas and perforations, have proven effective in controlling recurrent bleeding in large ulcers, while promising results are emerging from the study of new topical hemostatic agents[25,26].

Although the need for surgical intervention has decreased from 30% in the 1970s to 4% in more recent studies, there remains a proportion of ANVUGIB cases that cannot be treated endoscopically and are associated with a poorer prognosis[27]. Early identification of these patients and prompt referral for embolization or surgery can make a difference.

As highlighted in the work of Wang *et al*[11], despite potential geographical differences in clinical and epidemiological aspects, the implementation of current management protocols for ANVUGIB in accordance with the latest guidelines and scientific evidence ensures excellent chances of success. In this context, with the development of new tools and technologies, endoscopy will play an increasingly central role in the management of patients with ANVUGIB.

FOOTNOTES

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