Annals of Gastroenterology (2011) **24,** 336-337

Extensive necrosis of duodenum after injection sclerotherapy of a bleeding duodenal ulcer with 5% ethanolamine

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We read with considerable interest the study of Konstantinidis et al about the use of ethanolamine 5% as injection therapy for bleeding peptic ulcer [1]. Having experienced a severe complication induced by ethanolamine injection, we are concerned with the study's conclusion that injection treatment with ethanolamine is safe.

An 85-year-old man with a history of heart failure stage III, hypertension and recent diclofenac treatment for knee osteoarthritis, presented with hematemesis. Urgent upper gastrointestinal endoscopy revealed a relatively large ulcer with a non-bleeding visible vessel on the posterior wall near to the apex of duodenal bulb. Four mL of epinephrine solution (1:10000) plus 3 mL ethanolamine were injected in the four quadrants around the ulcer (epinephrine) and within the ulcer base (ethanolamine). Six hours later he developed severe upper abdominal pain and non-bloody vomiting. An abdominal x-ray showed free air under the diaphragms. Surgery demonstrated an extensive necrosis of distal antrum, bulb and second part of duodenum due to thrombosis of the gastroduodenal artery. He underwent a Whipple operation with uneventful course.

Despite the fact that sclerosants are described as safe and effective in treating bleeding ulcers, they may be associated with serious complications including perforation, necrosis, ulceration, vessel thrombosis and hemorrhage, leading to significant morbidity and one reported fatality [2-6]. Moreover, four studies showed no advantage of using ethanolamine alone or in combination over using epinephrine alone [7-10].

Therefore, we believe that there is a limited role for sclerosants in light of other therapies with fewer associated complications.

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Conflict of Interest: None

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Received 28 June 2011; accepted 17 August 2011

Author's reply

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Dr P. Katsinelos' letter contributes substantially to the discussion on the safety of injection sclerotherapy for peptic ulcer bleeding. Although sclerosant-induced vascular thrombosis can lead to wall necrosis and free perforation, previously published series as well as our study, do not report any occurrence of free perforation with the use of ethanolamine [1-3]. In our Department, one perforation has occurred after the completion of more than 200 procedures. This case was a second attempt to treat recurrent bleeding from a large duodenal ulcer with increased volumes of ethanolamine. Thus we could advise against the use of large ethanolamine volumes (>2 mL) for hemostasis of duodenal ulcers. Taken together, the above data indicate that perforation probably occurs in much lower frequencies than the 3-4%, reported

with the use of multipolar electrocoagulation and heater probe [4,5].

The efficacy of combination injection regimens has been challenged by a small number of early studies that included inadequate numbers of patients to establish superiority over epinephrine monotherapy [2]. However, the superiority of combination injection regiments has been highlighted by a number of meta-analyses [6,7], and acknowledged in the most recent consensus recommendation on the management of patients with non-variceal upper gastrointestinal bleeding [8]. Our work is the first to have included enough patients to demonstrate superiority of the combination of ethanolamine and epinephrine injection therapy over the injection of epinephrine alone for at least one of the study outcomes [3].

Since awareness is considered the cornerstone of safety, Dr Katsinelos' case report has already served its purpose. However, existing literature data as well as our presented study indicate that ethanolamine with epinephrine injection therapy represents a safe and efficacious alternative whenever safer methods like APC or hemoclips are either unavailable or difficult to apply [3,9].

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Conflict of Interest: None

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Received 8 August 2011; accepted 27 August 2011