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the repeated finding of PVT complicating variceal injection sclerotherapy.[6,7] Although injection sclerotherapy has been almost entirely replaced by endoscopic band ligation (EBL), which is thought to be more effective and safer, the incidence of PVT has not been prospectively investigated after EBL. Undeniably, EBL causes endothelial (and transmural) vessel injury with ensuing release of tissue factor at the oesophageal varices, that are part of the portal venous system. It is conceivable therefore that this could promote thrombosis of the varices, that may progress into the portal system leading to PVT. The potential for PVT after EBL might be lower than after injection sclerotherapy, but this does not mean that this risk should be disregarded. Such an association may have remained unperceived, in the same way that NSBBs (used since 1983 for the treatment of portal hypertension) knowing to decrease portal blood flow velocity (the postulated mechanism by which its use would facilitate PVT[8,9]) were not specifically investigated until the study by Nery et al[1]

Of note, some patients in the study by Nery et al[1] had also undergone endoscopic therapy. Unfortunately, how many had endoscopic therapy (presumably EBL) is not reported in the paper and supplementary material, and the potential impact of a history of endoscopic therapy on the development of PVT was not analysed. Similarly, among the eight patients excluded due to PVT or splenic vein thrombosis, it would be interesting to know if they had been exposed to endoscopic therapy (or to NSBBs).

In conclusion, we postulate that endoscopic therapy might have been another confounder in the study by Nery et al.[1] It would be desirable that future studies in large prospective cohorts investigate the potential role of endoscopic therapy in PVT in patients with cirrhosis.

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LINKED CONTENT

This article is linked to Nery et al and Nery and Valla papers. To view these articles, visit https://doi.org/10.1111/apt.15137 and https://doi.org/10.1111/apt.15262.

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Letter: nonselective beta-blockers, endoscopic therapy and portal vein thrombosis in cirrhosis. Authors' reply

EDITORS,

We thank Dr Bosch and Dr Berzigotti for their interest in our paper.[1,2] They suggest that endoscopic therapy, particularly sclerotherapy, might precipitate the development of portal vein thrombosis (PVT) and they ask for further information on endoscopic therapy in patients enrolled in our study.

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None of the patients underwent endoscopic sclerotherapy. None of the patients was treated for gastric varices. All the patients that underwent oesophageal band ligation had previous variceal haemorrhage and large sized oesophageal varices. There were 20 such patients, amongst whom only three developed PVT. Furthermore, there were seven patients that had PVT at baseline (and were thus excluded), and one further patient who developed isolated splenic thrombosis during follow-up. Amongst these eight patients, seven were receiving propranolol before PVT diagnosis, five had oesophageal varices of medium or large size and only two had undergone prior endoscopic therapy for oesophageal varices, at least 2 years before PVT diagnosis. We believe that these limited data, although not pointing to endoscopic therapy as a strong precipitating factor for PVT, do not allow us to definitively address the issue raised by Drs Bosch and Berzigotti.

As alluded by Drs Bosch and Berzigotti, endoscopic sclerotherapy has been suggested to cause PVT development, based on selected cases or small sized retrospective studies.[3,4] However, prospective studies failed to show haemodynamic changes with a potential to precipitate PVT.[5,6] There are data showing that PVT development after endoscopic sclerotherapy (even when 7 months after the procedure) is strongly associated with underlying thrombophilia.[7] Last but not least, prospective [8] and retrospective[9] studies did not show significant differences in the incidence of PVT in patients with a history of variceal bleeding, according to whether treatment with endoscopic sclerotherapy was employed or not.

We agree that our results require external validation before any firm conclusion can be withdrawn regarding strategies for oesophageal varices treatment. However, we believe that the same confounder, the severity of portal hypertension requiring therapy, makes it difficult to assess the role of treatment for variceal bleeding itself. Future studies should clarify not only the mechanism by which nonselective beta-blockers may induce (or help induce) PVT, but also, the subpopulation of cirrhotic patients that would benefit most from this therapy and those in which an added risk would not justify its use.

LINKED CONTENT

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