

Pre-Procedure Desmopressin and Bleeding Risk after Endoscopic Retrograde Cholangiopancreatography and Endoscopic Biliary Sphincterotomy



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Abstract

- Intravenous Desmopressin (DDAVP) is occasionally given to uremic patients before endoscopic retrograde cholangiopancreatography (ERCP) with sphincterotomy to reduce the risk post-sphincterotomy bleeding (PSB).
- However, this practice is based on extrapolation from previous studies that evaluated the use of desmopressin prior to surgery or renal biopsy to decrease the risk of bleeding and transfusion requirements.
- The aim of this study was to identify the impact of desmopressin on post-sphincterotomy bleeding rates after ERCP.

Introduction

- The incidence of ERCP PSB ranges from 0.3-12.2% with a mortality rate of 0.04%.
- PSB is defined as either an immediate or delayed bleed, manifested by an episode of melena, hematemesis, or drop in hemoglobin.
- The current American Society for Gastrointestinal Endoscopy (ASGE) QI recommendation list the "Rate of clinically significant hemorrhage after sphincterotomy or sphincteroplasty in patient undergoing ERCP" as a post-procedure quality indicator.

Methods and Materials

- This was a single-center retrospective study of patients who underwent an ERCP with sphincterotomy at our institution between January 2011 and January 2021.
- Primary outcomes were the rate of post sphincterotomy bleeding (PSB). Descriptive statistics and univariable analysis were performed.

Variables	PSB N=31	No PSB N=2,469	P-value
Age	58.6±24.0	54.4±20.9	.17
Gender			
Female	16 (51.6)	1,405 (56.9)	.55
Pre-op Labs			
BUN	22.0±17.4	13.1±10.3	<.001
Cr	1.47±1.4	0.90±0.71	.037
INR	1.2±0.3	1.1±0.2	.26
Platelets	213.0±118.5	240.0±108.8	.12
Anti-platelets			
Aspirin	8 (25.8)	541 (21.9)	.60
Clopidogrel	1 (3.2)	32 (1.3)	.35
DAPT	1 (3.2)	17 (.69)	.09
Anticoagulation			
Any	1 (3.2)	109 (4.4)	.75
Enoxaparin	0 (0)	25 (1.4)	.50
Warfarin	1 (3.2)	35 (1.4)	.40
Rivaroxaban	0 (0)	29 (1.2)	.54
Apixaban	0 (0)	39 (1.6)	.48
Edoxaban	0 (0)	1 (.04)	
Dabigatran	0 (0)	5 (0.2)	.80
DVT Prophylaxis			
Subcutaneous Heparin	4 (12.9)	291 (11.8)	.85
Enoxaparin	0 (0)	50 (2.0)	.42
ESRD	3 (9.7)	80 (3.2)	.04
DDAVP	6 (19.4)	93 (3.8)	<.001

Values are reported as n (%) or mean±SD

Table 1. Patient characteristics comparing patients who had post-sphincterotomy bleed and those who did not

Results

- 2500 patients underwent ERCP with sphincterotomy during the study period, of which 99 patients (4.0%) received DDAVP.
- 24% of patients were on anti-platelet agents, 4.4% on therapeutic anticoagulation, and 13.8% on DVT prophylaxis.
- Post-sphincterotomy bleeding occurred in 31 patients (1.24%).
- Patients who experienced PSB had higher BUN (p<.001), were more likely to be on hemodialysis (p=.04) and were more like to receive DDAVP (p<.001).

Variables	OR (95% CI)	P-value
Age	0.99 (.98-1.02)	.910
Female gender	1.13 (1.00-1.06)	.744
Bun	1.03 (1.01-1.06)	.037
Cr	1.15 (.75-1.78)	.514
ESRD on HD	0.52 (.09-3.09)	.477
Aspirin	0.92 (0.38-2.25)	.860
Clopidogrel	1.87 (0.21-16.44)	.573
Anticoagulation	0.46 (0.05-3.41)	.437
DDAVP	2.35 (0.67-8.28)	.181

Table 2. Multivariable logistic regression of predictors of post-sphincterotomy bleeding

Discussion

- Patients with PSB were found to have higher BUN (22±17.4 vs 13.1 ±10.3, p<.001) and creatinine (1.47±1.4 vs 0.90 ±0.71, p=0.037) levels compared to those who did not have a bleed
- Those who received DDAVP were generally older (66.4 vs 53.9 years old), had higher BUN, creatinine, INR and lower platelets.
- A significant number of patients taking warfarin or placed on DVT prophylaxis prior to ERCP were not placed on DDAVP (p<.001).
- Patients with an elevated BUN were at increased likelihood of incurring a PSB with an OR of 1.03 (1.01-1.06, p=0.037)

Conclusions

- Uremia was the primary risk factor for patients developing PSB, elevated creatinine was also a significant risk factor.
- Desmopressin does not reduce the incidence of post-sphincterotomy bleeding and should no longer be used for this purpose.

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