Moxifloxacin Prophylaxis for Patients Undergoing Radioembolization with a History of Biliary Colonization

Beaumont

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Purpose

- To describe the rate of infectious complications in patients undergoing Y90 radioembolization who received our standard antibiotic prophylaxis.
- To compare the efficacy of the current antibiotic prophylaxis regimen to a historical control study.

Methods

- All patients with a history of biliary colonization undergoing transcatheter hepatic radioembolization received antibiotic prophylaxis.
- Biliary colonization included all patients with a history of sphincter of oddi incompetence due to prior intervention (sphinctorotomy, biliary stent or surgical biliary-enteric anastomosis (hepaticojejunostomy, choledocojejunostomy or biliroth II anatomy).
- Clinical and radiologic data from all Y90 radioembolization procedures performed in patients with a history of biliary colonization were compiled.
- Demographic data and infectious complication occurrence were compared to a historical control study published by Cholanpree et al.

Antibiotic Regimen

CURRENT STUDY

- Once daily oral moxifloxacin (400mg), 2 days prior to, the day of and 7 days after their the day of treatment.
- 1g cefazolin IV on the day of radioembolization.

HISTORICAL CONTROL STUDY

- Oral Levofloxacin and Metronidazole 2 days pre-procedure, continued for 14 days after and oral Neomycin/Erythromycin bowel prep the day before, and IV Levofloxacin/Metronidazole the day of treatment.

Results

Table 1. Demographic data of all patients who met inclusion criteria

Patient Number	Malignancy Type	Y 90 Agent	Delivery Site	Delivered Activity (GBq)	Biliary Colonization	Follow up Imaging Modality
1	Hepatocellular Carcinoma	Therasphere	RHA	0.85	Sphinctorotomy	MRI
1	Hepatocellular Carcinoma	Therasphere	LHA	1.27	Sphinctorotomy	MRI
2	Cholangiocarcinoma	SIR Sphere	RHA	1.4	ERCP, stent	CT
2	Cholangiocarcinoma	SIR Sphere	LHA	1.41	ERCP, stent	CT
2	Cholangiocarcinoma	SIR Sphere	LHA	0.29	ERCP, stent	CT
3	Pancreatic Adenocarcinoma	SIR Sphere	RHA	1.34	Whipple	CT
4	Neuroendocrine	SIR Sphere	RHA	1.56	ERCP, stent	CT
4	Neuroendocrine	SIR Sphere	LHA	0.86	ERCP, stent	CT
5	Hepatocellullar carcinoma	Therasphere	RHA	3.79	Sphinctorotomy	MRI
5	Hepatocellular carcinoma	Therasphere	LHA	3.55	Sphinctorotomy	MRI
6	Neuroendocrine	SIR Sphere	RHA	1.66	ERCP, stent	CT
6	Neuroendocrine	SIR Sphere	LHA	1.23	ERCP, stent	CT
7	Hepatocellular Carcinoma	Therasphere	LHA	4.44	Sphinctorotomy	MRI
8	Cholangiocarcinoma	SIR Sphere	LHA	0.88	ERCP, stent	CT
9	Pancreatic Adenocarcinoma	Therasphere	RHA	0.75	Whipple	CT
9	Pancreatic Adenocarcinoma	Therasphere	LHA	1.9	Whipple	CT
10	Cholangiocarcinoma	SIR Sphere	RHA	0.34	ERCP stent	CT
10	Cholangiocarcinoma	SIR Sphere	LHA	0.53	ERCP stent	CT
10	Cholangiocarcinoma	SIR Sphere	RHA	0.39	ERCP stent	CT
11	Cholangiocarcinoma	Therasphere	LHA	1.99	ERCP Stent	CT
12	Neuroendocrine	SIR Sphere	RHA	0.30	Whipple	CT
12	Neuroendocrine	SIR Sphere	LHA	1.23	Whipple	CT
13	Gallbladder adenocarcinoma	Therasphere	RHA	3.91	ERCP stent	None

Table 2. Results of the current and control studies

	Current	Control	p
Number of patients	13	16	0.685
Number of deliveries	23	24	0.991
Male/Female	7,6	12,4	0.2701
Age (range)	62 (45-79)	63 (40–88)	0.8022
Performance status 0/1	11,2	11,5	0.41
Albumin mean	3.9 [2.6- 3.9]	3.7 [2.5-4.6]	0.2415
Serum bilirubin	0.9 [0.4- 2.1]	0.7 [0.3-1.4]	0.1372
Alkaline phosphatase	201 [99-1040]	185 [74-849]	0.8422
AST	67 [30-211]	41 [16-180]	0.1165
ALT	76 [23- 161]	40 [15-130]	0.0049
INR	1.0 [1.0-1.2]	1.1 [1.0-1.3]	0.0003
Platelets	196 [75-323]	217 [67-479]	0.5244
Creatinine	0.91 [0.48- 1.66]	0.96 [0.75-1.72]	0.6202

Table 3. Infectious outcomes of current and control studies

	Current	Control
Abscess	0	0
Cholangitis	0	0
Abx related complication	0	Not reported

Discussion

- Moxifloxacin was selected as a prophylactic agent based on large series showing its effectiveness as monotherapy for treating complicated intra-abdominal infections.
- Two characteristics make it particularly useful for hepatic prophylaxis including it's enhanced excretion into the biliary system and enhanced activity against anaerobic organisms.
- Results from the current study suggest that a 10 day course dose of Moxifloxacin alone appears to be as effective at preventing hepatic abscess formation compared to the 20 day, multidrug regimen with bowel preparation.
- Findings of this study are important for several reasons. First, the use of a simple, once daily dose could improve compliance[19]. Second, our regiment may mitigate the need for bowel preparation which can be extremely uncomfortable and lead to dehydration and electrolyte imbalance. Third, single use oral Moxifloxacin limits the duration of therapy to a 10 day course which could help prevent propagation of antibiotic resistance and limit antibiotic related complications such as c difficile colitis.

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