

Retroperitoneal Hematoma in Patients Undergoing Cardiac Catheterization



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Research Study Example

Introduction

More than a million cardiac catheterizations are performed in the United States every year. Complications from femoral artery puncture have increased with increasing complexity of diagnostic and therapeutic cardiac catheterizations and the more frequent use of:

- Thrombolytics,
- Antiplatelet agents,
- Anticoagulants and
- Larger size cannulas

Retroperitoneal Hematoma (RPH) remains the least well studied and the most serious of the vascular complications of cardiac catheterization. RPH is a cause of significant morbidity and is potentially lethal. Early diagnosis of RPH is elusive due to its concealed nature.

Research Objective

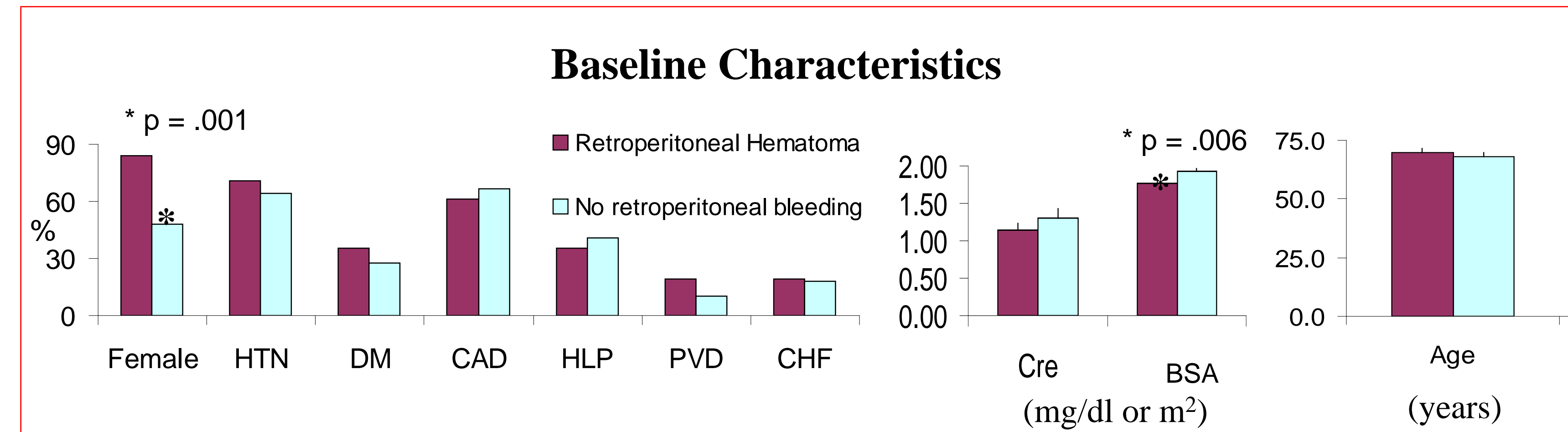
To retrospectively study the demographic, clinical and hospital outcome data on patients who developed retroperitoneal hemorrhage after cardiac catheterization in our institution over the last five years.

Methods

- About 5000 cases of cardiac catheterizations are performed at SJHMC every year (54.8 % male / 45.2 % female)
- Billing codes for “hemorrhage complicating procedure”, “hematoma complicating procedure” and “anemia requiring transfusion” were used to identify cases
- 1648 patients who underwent percutaneous procedures between 01/01/2000 to 07/30/2005 were identified.
- 1634 charts were reviewed
- We collected:

baseline demographics	clinical manifestations
procedural details	management
anticoagulation	clinical outcome
- Control group (n = 90) randomly selected and matched with RPH cases
- 31 positive cases of RPH were identified, 26 females (83.9%), 5 males (16.1%)

Results

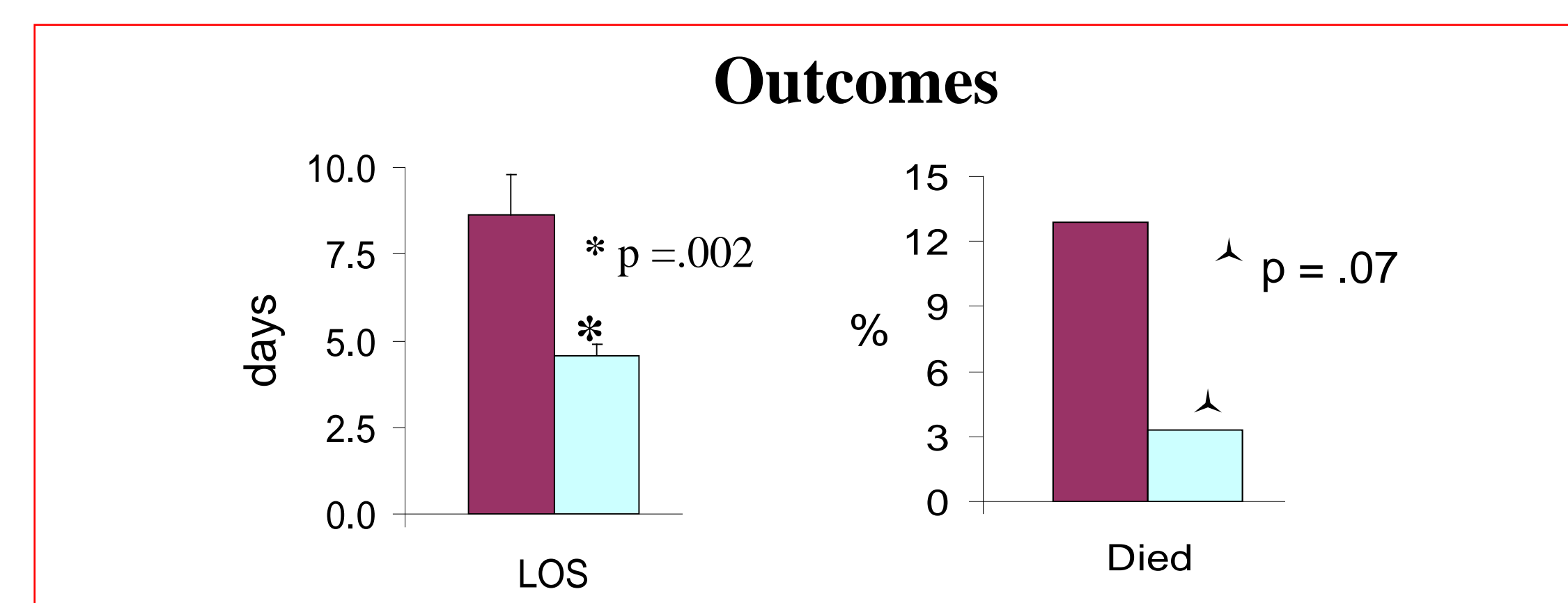
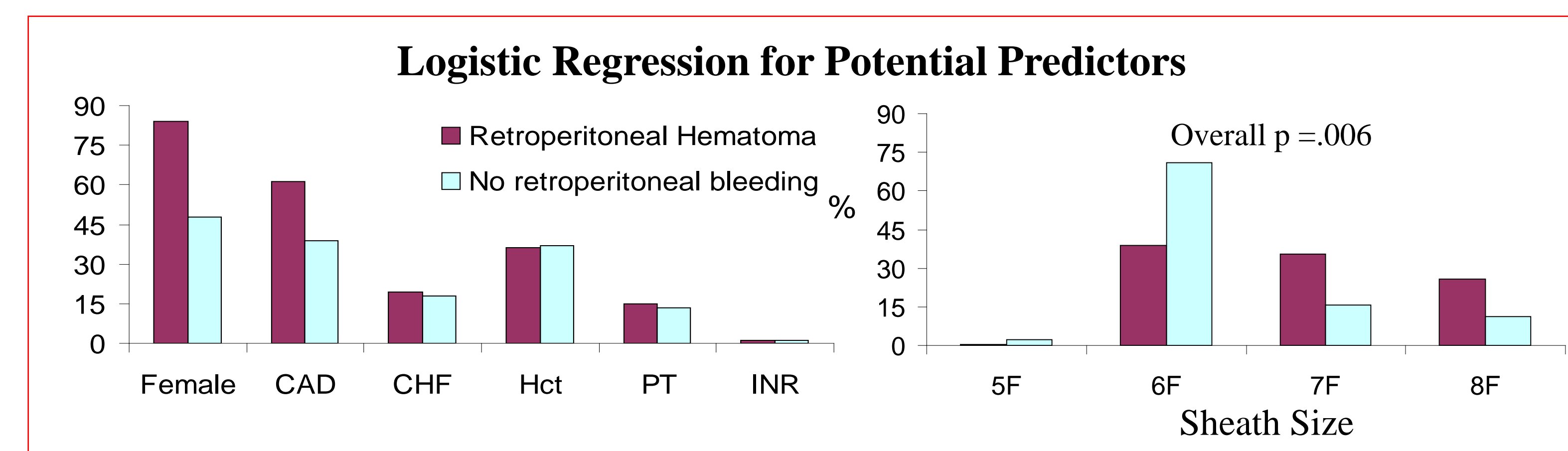
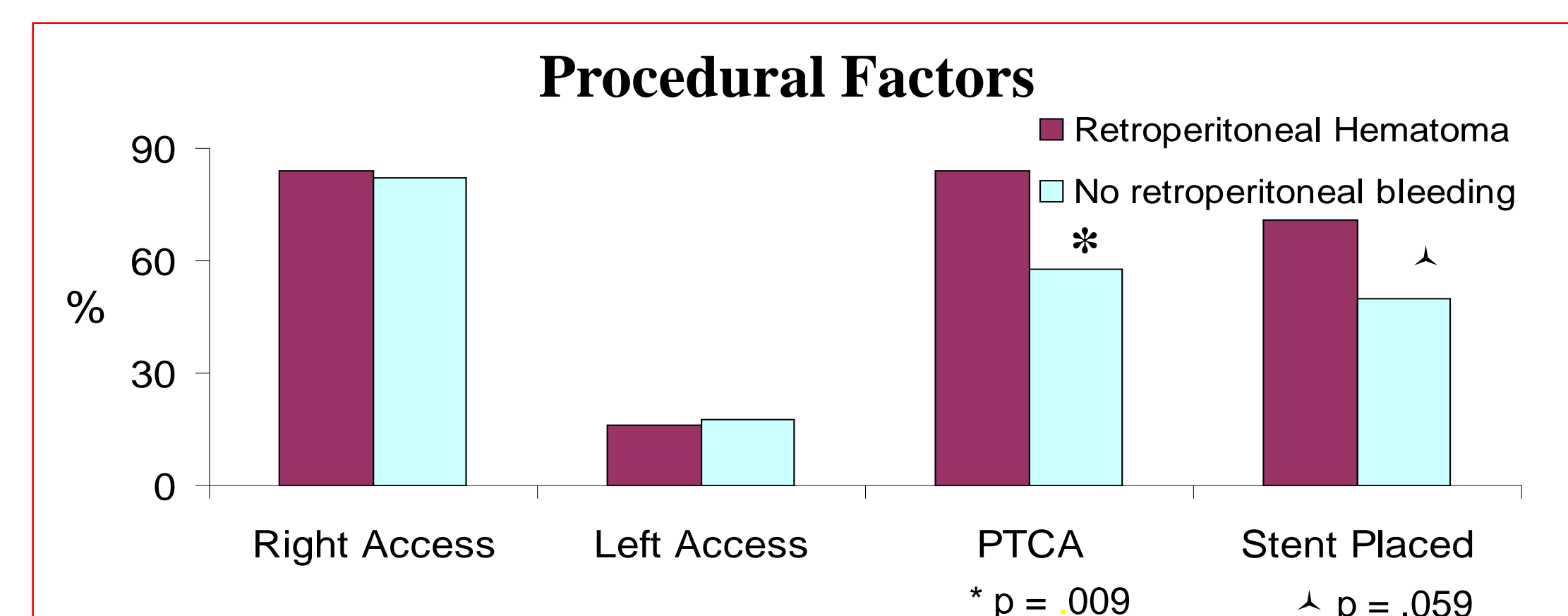


Medication Use

Medication	Count	Percentage
Heparin	28*	90.3%
ASA	25	80.6%
Integrilin	24	77.4%
Plavix	22	71.0%
Coumadin	3	9.7%
Angiomax	2	6.5%
ReoPro	1	3.2%
Celebrex	2	6.5%
Aggrastat	0	0%
LMWH	0	0%

Clinical Features

Clinical Feature	Count	Percentage
Fall in Hb/Hct	30*	96.8%
Hypotension	27	87.1%
Abdominal Pain	18	58.1%
Nausea / Vomiting	12	38.7%
Flank Ecchymosis	4	12.9%
Bradycardia	3	9.7%
Urinary Symptoms	3	9.7%
Lower Ext Pain	2	6.5%
Chest Pain	2	6.5%
Femoral N Palsy	0	0%
Other Symptoms	10	32.3%
Groin Hematoma	16	51.6%
Pseudo Aneurysm	3	9.7%



Discussion

- Our 31 cases makes this the second largest series of RPH cases ever reported
- 86% female (26/31)
- RPH incidence in our institution was 0.11
- Our study reaffirms that female gender independently predicts RPH
 - May be due to smaller and shorter femoral arteries (*J Am Coll Cardiol* 2001; 73: 561)
 - Hormonal causes may also play a part (*Thromb Haemost* 1995; 73: 561)
- Hypotension (87.1%), fall in Hb / Hct (96.8%), abdominal pain (58.1%), nausea and vomiting (38.7%) were the predominant presenting clinical features
- Sheath size, BSA, PTCA and stents were risk factors in univariate analyses
- 12.9% (4/31) of patients were treated surgically and 87.1% (27/31) conservatively
- RPH associated with longer length of hospital stay (8.6 vs 4.5 days; p = .002)
- Mortality rate was 12.9% in patients with RPH (4/31), compared to 3.3% in control group (3/90), (P=0.07).
- Increased awareness of risk factors and presenting clinical features will promote prevention, early recognition and prompt treatment.

References

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2. Sreeram S, Lumsden AB, Miller JS, Salam AA, Dodson TF, Smith RB. Retroperitoneal hematoma following femoral arterial catheterization: a serious and often fatal complication. *Am Surg*. 1993 Feb;59(2):94-8.
3. Kent KC, Moscucci M, Mansour KA, DiMattia S, Gallagher S, Kuntz R, Skillman JJ. Retroperitoneal hematoma after cardiac catheterization: prevalence, risk factors, and optimal management. *J Vasc Surg*. 1994 Dec;20(6):905-10; discussion 910-3.