

Out Patient Access Centers in a Vascular Practice

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Government policy

- In 2005 deficit reduction act payment was approved for percutaneous vascular procedures when performed in office
- CMS starting paying for the procedures
- Other insurance companies followed soon after



Current status

- Life line vascular access (72) Fresenius (54)
 - Nephrologists 65 18
 - Vascular surgeons 6 8
 - General surgeon 1
 - Intervention radiologists 27
 - Hospital based 1

Other centers (120): Interventional cardiologists, radiologists and vascular surgeons



Procedures

| Procedure | Procedure |
|--|-------------------------------------|
| Aortogram | Fistulogram/Angioplasty/Coiling |
| Aortogram/Runoff | Microphlebectomy |
| Aortogram/Angioplasty | EVLT |
| Aortogram/Angioplasty/Stent | EVLT/Microphlebectomy |
| Aortogram/Runoff/Angioplasty | Tunneled Catheter Insertion |
| Aortogram/Runoff/Angioplasty/Stent | Tunneled Catheter Removal |
| Atherectomy | Tunneled Catheter Exchange |
| Fistulogram | Venogram |
| Fistulogram/Angioplasty | Venogram/Angioplasty |
| Fistulogram/Angioplasty/Stent | Inferior Vena Cava Filter Insertion |
| Fistulogram/Thrombectomy | Inferior Vena Cava Filter Removal |
| Fistulogram/Thrombectomy/Angioplasty | Power Port Insertion and removal |
| Fistulogram/Thrombectomy/Angioplasty/Stent | Carotid angiogram |
| Fistulogram/Coiling | Renal angiogram and angioplasty |



Total Procedures

5/22/2007-3/17/2014

| Procedure | Number |
|----------------------------|--------|
| Aortograms | 1175 |
| Catheters | 1784 |
| Venous | 1175 |
| Fistulograms | 3501 |
| Venograms | 75 |
| PowerPorts | 214 |
| Inferior Vena Cava Filters | 79 |
| Total | 8003 |



Catheters

| Procedure | Number |
|----------------------------|--------|
| Central catheter exchange | 354 |
| Central cathetergram | 3 |
| Central catheter insertion | 488 |
| Central catheter removal | 939 |
| Total | 1784 |



Aortograms

| Procedure | Number |
|--|--------|
| Arteriogram runoff | 652 |
| Arteriogram runoff, angioplasty | 288 |
| Arteriogram runoff, angioplasty, stent | 126 |
| Arteriogram, coil | 5 |
| Atherectomy ,angioplasty | 90 |
| Atherectomy, stent | 9 |
| Cerebral angiogram | 5 |
| Total | 1175 |



Venous

| Procedure | Number |
|--|--------|
| EVLT | 450 |
| EVLT, microphlebectomy | 593 |
| Microphlebectomy | 125 |
| Radiofrequency ablation | 4 |
| Radiofrequency ablation, microphlebectomy | 3 |
| Total | 1175 |



Fistulograms

| Procedure | Number |
|---|--------|
| Fistulogram | 388 |
| Fistulogram, angioplasty | 2209 |
| Fistulogram, angioplasty, coil | 60 |
| Fistulogram, angioplasty, coiling, stent | 1 |
| Fistulogram, angioplasty, stent | 101 |
| Fistulogram, coil | 48 |
| Fistulogram, stent | 4 |
| Fistulogram, thrombectomy | 2 |
| Fistulogram, thrombectomy, angioplasty | 648 |
| Fistulogram, thrombectomy, angioplasty, stent | 40 |
| Total | 3501 |

Venograms

| Procedure | Number |
|------------------------------|--------|
| Venogram | 67 |
| Venogram, angioplasty | 7 |
| Venogram, angioplasty, stent | 1 |
| Total | 75 |



Power Ports

| Procedure | Number |
|----------------------|--------|
| Power port exchange | 4 |
| Power port insertion | 167 |
| Power port removal | 42 |
| Portogram | 1 |
| Total | 214 |



Inferior Vena Cava Filters

| Procedure | Number |
|---------------|--------|
| IVC placement | 16 |
| IVC removal | 63 |
| Total | 79 |



Office-based endovascular suite is safe for most procedures

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Objective: This study was conducted to identify the safety of endovascular procedures in the office endovascular suite and to assess patient satisfaction in this setting.

Methods: Between May 22, 2007, and December 31, 2012, 2822 patients underwent 6458 percutaneous procedures in an office-based endovascular suite. Demographics of the patients, complications, hospital transfers, and 30-day mortality were documented in a prospective manner. Follow-up calls were made, and a satisfaction survey was conducted. Almost all dialysis procedures were done under local anesthesia and peripheral arterial procedures under conscious sedation. All patients, except those undergoing catheter removals, received hydrocodone and acetaminophen (5/325 mg), diazepam (5-10 mg), and one dose of an oral antibiotic preprocedure and three doses postprocedure. Patients who required conscious sedation received fentanyl and midazolam. Conscious sedation was used almost exclusively in patients having an arterial procedure. Measurements of blood urea nitrogen, creatinine, international normalized ratio, and partial thromboplastin time were performed before peripheral arteriograms. All other patients had no preoperative laboratory tests. Patients considered high risk (American Society of Anesthesiologists Physical Status Classification 4), those who could not tolerate the procedure with mild to moderate conscious sedation, patients with a previous bad experience, or patients who weighed >400 pounds were not candidates for office based procedures.

Results: There were 54 total complications (0.8%): venous, 2.2%; aortogram without interventions, 1%; aortogram with interventions, 2.7%; fistulogram, 0.5%; catheters, 0.3%; and venous filter-related, 2%. Twenty-six patients required hospital transfer from the office. Ten patients needed an operative intervention because of a complication. No procedure-related deaths occurred. There were 18 deaths in a 30-day period. Of patients surveyed, 99% indicated that they would come back to the office for needed procedures.

Conclusions: When appropriately screened, almost all peripheral interventions can be performed in the office with minimal complications. For dialysis patients, outpatient intervention has a very low complication rate and is the mainstay of treatment to keep the dialysis access patent. Venous insufficiency, when managed in the office setting, also has a low complication rate. Office-based procedural settings should be seriously considered for percutaneous interventions for arterial, venous, and dialysis-related procedures. (J Vasc Surg 2014;59:186-91.)



Total Procedures

5/22/2007-12/31/2012

| Procedure Type | Number Procedures per Type | Percentage Total Procedures |
|----------------|----------------------------|-----------------------------|
| Fistulogram | 2719 | 42% |
| Catheter | 1477 | 23% |
| Venous | 1019 | 16% |
| Arteriogram | 939 | 15% |
| PowerPort | 184 | 3% |
| Venogram | 63 | <1% |
| IVC | 57 | <1% |
| Total | 6,458 | |



| Procedure Type | Procedures | Complications | % Complications/Procedures |
|-------------------------------------|------------|---------------|----------------------------|
| Venous | 1019 | 22 | 2.2% |
| Arteriogram with no interventions | 571 | 4 | 1% |
| Arteriogram with intervention | 368 | 10 | 2.7 |
| Fistulogram | 2719 | 13 | 0.5% |
| Catheters | 1477 | 4 | 0.3% |
| Inferior Vena Cava Filter | 57 | 1 | 2% |
| *Jain et al, J Vasc Surg,59:186-191 | | | |



Post procedure Death

- One patient since publication has expired
- Sixty six year old white male hemodialysis dependent, h/o hypertension, hypercholesterolemia, post aorto coronary bypass, post Aortic aneurysm endovascular repair, ischemic cardiomyopathy, h/o cardiac arrest had left Brachial artery angioplasty from femoral approach.
- Developed retroperitoneal hematoma post procedure
- Stabilized with blood transfusion, did not need repair
- Died of multi organ failure



Lessons learnt

- You can do more than you think
- Do not push the envelop
- Follow Medicare guidelines and avoid audits
- Cost containment is mandatory
- Follow protocols



Lessons learnt

- Mentor new associates
- Communication between the team members is essential
- Use conscious sedation judiciously
- Be prepared to handle all emergencies
- Know your data



Cost containment

Join Buying group

Employee cost

Sharing facility

Inventory



Contraindications for Procedure in Office

- Weight over 400 pounds
 - Poor pain tolerance
 - ASA 4
 - Severe dye allergy
 - Previous bad experience for patient
-
- *4% of dialysis patients are not suitable for office procedures*

Outpatient Endovascular Interventional Society

- Fifteen board members
- Five each from Vascular surgery, intervention cardiology and interventional radiology
- First annual meeting in San Antonio on May 15-17
- First society with active interdisciplinary cooperation



Future

- Greater than 75% of endovascular procedures will be performed in office based access/ endovascular centers unless government decides to change the current regulations and financial structure in a drastic way
- More Vascular surgeons need to take a leadership role in developing these centers
- Academic surgeons need to figure out how to work in this environment.

