several years ago, and similar reviews of arteriograms at my institution confirm these findings.

There is no specific reason why this pattern occurs, yet African American women who suffer a myocardial infarction have a 69% increased incidence of death when compared to the general female population. Correlating the risk of cardiomyopathy after myocardial infarction with that of amputation with peripheral vascular disease is therefore reasonable. In those patients with coronary artery disease, it appears that the number of risk factors may determine the severity of disease.

Socioeconomic factors, access to health care, and altered delivery of health care to minorities may all be factors. The number of risk factors as well as the severity of risk factors may be a factor. Whatever the cause, the result is a two- to fourfold increase in amputations between this and the general population. This study attempts to better define the causes of higher amputation rates in minorities by determining the number of risk factors in each amputated patient.

XXVIII.10 Iliac Fixation Is the Key to Preventing Stent Graft Migration after Endovascular Aneurysm Repair
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Secure fixation of endovascular devices to the proximal aortic neck is known to be an important factor in preventing endograft migration. A variety of proximal fixation mechanisms are available, including infrarenal and suprarenal designs, with or without hooks and bars. Despite favorable ex vivo and experimental studies indicating that penetrating hooks in proximal fixation mechanisms resist acute displacement forces, clinical migrations of such devices are seen. However, little attention has been paid to the role of iliac fixation in securing in vivo endograft stability. Endovascular devices have a variable degree of longitudinal columnar support and even devices with little intrinsic longitudinal support, may gain effective longitudinal support when contained within the iliac arteries. We sought to determine the relative importance of iliac fixation length in preventing migration of an endovascular device that is known to have considerable longitudinal columnar support.

The clinical results of 173 patients with long-term serial imaging follow-up who were treated using the Ancure Rx stent graft system were reviewed. Quantitative image analysis was performed to determine proximal aortic and distal iliac fixation length and to determine whether subsequent migration occurred. Patients were grouped according to good (>15 mm), intermediate, or bad (<10 mm) aortic fixation and good (<10 mm from iliac bifurcation), intermediate, or bad (<15 mm fixation length) iliac fixation. Patients with good iliac and aortic fixation (group I) were compared to those with good iliac and bad/intermediate aortic (group II), bad/intermediate iliac and good aortic (group III), and bad/intermediate iliac and bad/intermediate aortic (group IV) fixation.

Stent graft migration of 10 mm or more was seen in 17 patients (10%) during the 23 ± 19-month follow-up. There were no migrations among patients with good iliac fixation regardless of whether the aortic fixation was good, intermediate, or bad (0 of 63, 0%). Among patients with bad/intermediate iliac and good aortic fixation, there were 5 of 55 migrations (9%). Patients with both bad/intermediate iliac and aortic fixation had the highest migration rate (12 of 52, 23%). Cox proportional hazards regression revealed that the most significant factor predicting migration was bad/intermediate iliac fixation. Iliac extender modules were placed in nine patients with bad iliac fixation and migration with no further migration during a mean follow-up at 12 months. Surgical conversions were successfully performed in four patients, including one patient with rupture; all had bad/intermediate iliac fixation. Patients with good iliac and aortic fixation and no endoleak on the initial postprocedure computed tomography (CT) (n = 43, 25%) had no migrations, secondary procedures, or adverse clinical events over a 2-year follow-up period.

Thus, it appears that migration of Ancure Rx stent grafts is primarily related to insufficient iliac fixation. Extension of the iliac limbs to the level of the iliac bifurcation appears to prevent stent graft migration. Patients with good proximal and distal fixation and no evidence of endoleak on postprocedure CT are unlikely to experience migration or adverse events or require a secondary procedure over a 2-year follow-up period.

XXVIII.11 Aorfix Flexible Endograft for Endovascular Aneurysm Repair: What Can It Do That Other Grafts Cannot, Based on 3-Year Clinical Results?
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As a result of our early experiences with the Chuter graft in 1994, it soon became clear that the straight-sided Gianturco stent and polyester graft combination had limitations as far as fixation and seal were concerned in angulated necks or curved iliacs. The straight-sided Gianturco stents simply do not conform to the curves and therefore allow endoleak, and our subsequent experience confirmed a fairly high slippage rate with downward migration of the top stent and upward migration of the iliac stents. In addition, on bench testing, it became quite clear that the junction where the contralateral limb is plugged into the stent on modular grafts using straight-sided Gianturco stents again provides a very weak pull-out strength and a stronger join was therefore required. The original research work was supported by a MedLink grant from the United Kingdom Department of Health and Department of Trade Industry so that we could develop an embroderised graft using Nitinol embroidered onto the cloth of the graft to create a tube that will go around corners without kinking and also form a sounder fixation in the iliacs and the junctions of the stent grafts, such as at the plug-in leg junction.

We explored many different patterns of embedding the wire onto the cloth and came up with a ladder pattern that was folded longitudinally so as to form the tube with circumferential rings of Nitinol on the outside of the graft. These rings enabled the tube to bend quite nicely up to 90° or more without kinking, and on bench testing, proved to be very much more leak resistant than the equivalent Gianturco stent at angulation above 40°. The first grafts were made by Pearsall Sutures in Taunton, UK, and were a uni-iliac pattern. They were tested appropriately in animals and the first ones were inserted into patients in December 2001. Since then the uni-iliac graft has been used in some 13 patients, most of whom have had difficult, angulated necks that were thought to be impossible to deal with by conventional Gianturco stent grafts. None of them have had postoperative type I endoleaks or migration of the top or bottom of the stent graft. The longest survivor is one who had his graft put in during March 2002, and the situation as of May 2005, is that he has no endoleak and no expansion of the graft. All the others seem to have done well despite having very angulated necks and iliacs.

We then went on to make a bifurcated graft with a plug-in contralateral leg. Bench testing showed that the circular wires interlocked at the junction of the plug-in to provide a very strong pull out strength of the order of 20 to 25 N, as opposed to the 4 or 5 N required to pull out a Gianturco stent combination plug-in leg. After extensive animal testing for the regulatory bodies we inserted the first bifurcation graft in October 2003 and since then have inserted over 50 bifurcated grafts in different centers throughout the world. The ini-