

# The Versilia experience of hemodialysis vascular access

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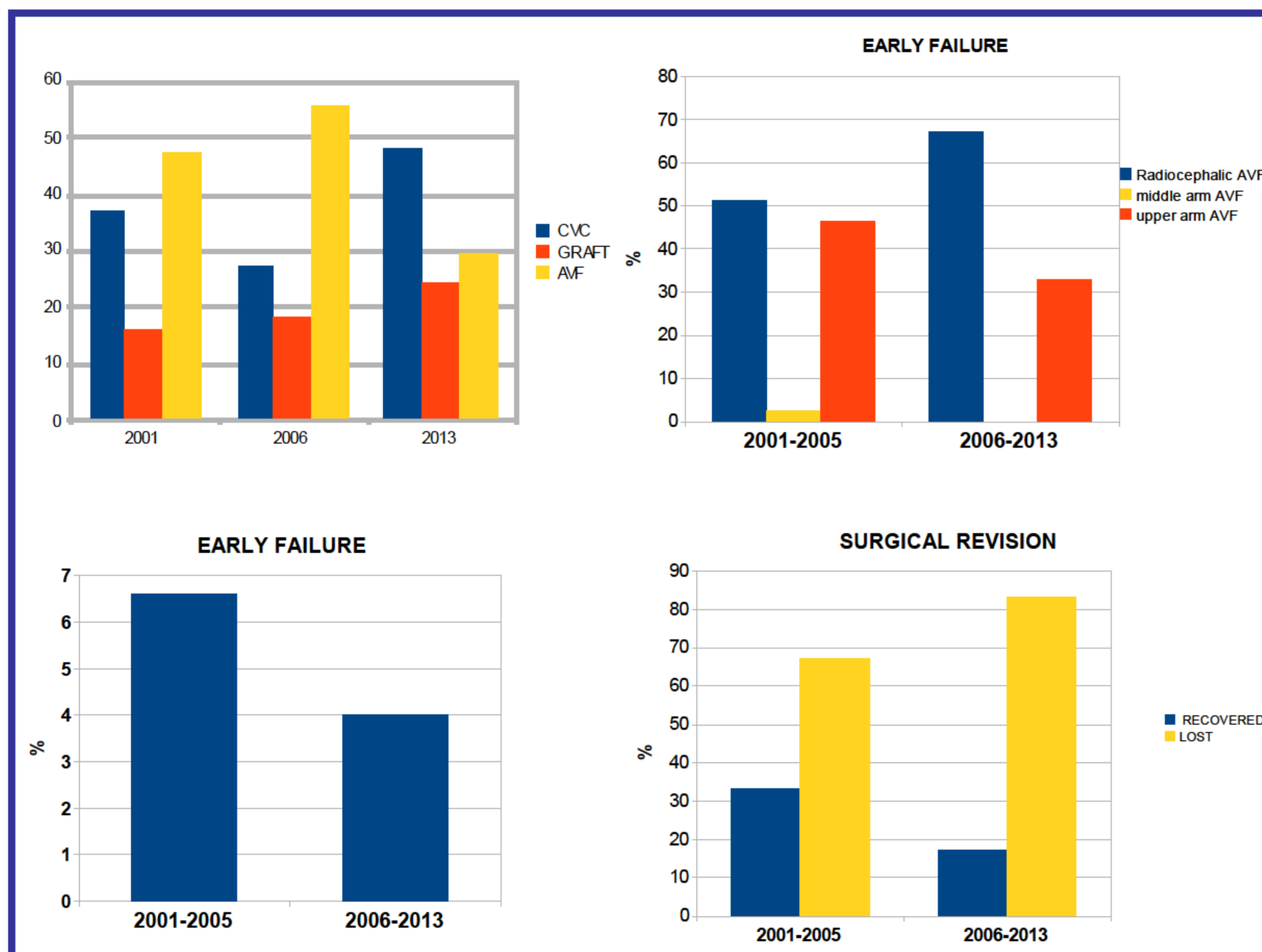
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## OBJECTIVES AND METHODS

The most important causes of morbidity and mortality of hemodialysis patients are related to vascular access (VA) complications. The scenario of VA has been profoundly changed during the last years according to the older age and more comorbidity status of our patients with a enormous increase of number of central venous catheters (CVC).

Our unit is the referral center for VA creation among dialysis units in Tuscany (Italy); we here describe our more recent clinical records. Moreover, we analyzed the occurrence of arteriovenous fistulas (AVF) failure and in particular early failure (EF) defined as AVF that cannot be successfully used for at least three consecutive dialysis sessions, by six weeks following its creation. EF incidence varies between 5 and 30%, in published series. We retrospectively analyzed all VA procedures performed from January 2001 to December 2013; moreover, we investigated the incidence of EF of the native arteriovenous fistulas (AVF).

## RESULTS



A total of 4276 VA were created: 1898 were AVF, 1508 were arteriovenous grafts (AVG) and 870 were CVC.

CVC placements increased over the years from 37% of all VA procedures in 2001 to 48% in 2013; ( $p < .001$ ). A similar trend was observed in the AVG use: they were 16% of all VA procedures in 2001 and 24% in 2013 ( $p < .001$ ).

On the contrary, AVF were 47% of all VA procedures in 2001 and 29% in 2013 ( $p < .001$ ). Between January 2001 and December 2005, EF occurred in 43 AVF (6.6%): 51.2% were radialcephalic fistulas, 46.5 were upper arm fistulas, while only 2.3% were middle arm fistulas. 33% of all primary failed AVF were surgical revised, while 67% were permanently lost.

Between January 2006 and December 2013, EF was observed in 46 AVF (4%): 67% were radialcephalic fistulas and 33% were upper arm fistulas.

A surgical revision was performed only in 17% of all primary failed fistulas, while 83% of them were permanently lost.

The main causes of EF were thrombosis and failure to mature.

## CONCLUSIONS

The increasing number of elderly dialysis patients, with higher prevalence of comorbidities, is probably the main cause of a frequent use of CVC and of a lower creation of native fistulas. Middle arm and upper arm AVF have lower EF incidence than radialcephalic fistulas.

The choice of AVF configuration, should aim to reduce the rate of EF, especially when a first native fistula is attempted.

A vascular access team, in which nephrologists perform all VA procedures seems to be able to reduce EF incidence.

