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Editorial

Patients' wishes, pregnancy and vascular access: When one size does not fit all

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Abstract

Pregnancy in dialysis patients is a rare but important event that challenges our knowledge and demands re-thinking many aspects of our practice, including vascular access. This editorial briefly discusses some open questions on vascular access in this situation that challenge the motto 'fistula first' and underline the need for personalised approaches. Information on vascular access in pregnant women is scant. Different approaches may be considered between women on dialysis already on a well-functioning tunnelled catheter and newly placed catheters: while a tunnelled catheter in a woman already stabilised on outpatient dialysis, who has shown being able to take correct care of it and who has freely chosen this option, is a reasonable choice, central venous catheters placed during pregnancy, especially in the hospital setting, may have a high risk of complications. Conversely, pregnancy may increase the risk of development of fistula aneurysms, but the frequency of this complication is still unknown. The problem of whether or not shifting pregnant patients on peritoneal dialysis to daily haemodialysis sessions is still open, as well as the role of patients' preference for avoidance of an invasive procedure, or refuse of pain. In the wait for answers, reflecting on the problems encountered by pregnant women on dialysis should make us reflect on how to improve vascular access management for all our patients.

Keywords

Pregnancy, pregnant, dialysis, haemodialysis, peritoneal, catheter, venous, central venous catheter, vascular access, fistula

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Pregnancy in dialysis patients is a rare but important, and emotional, event.

Several statements can be made on this issue: pregnancy is a new clinical frontier in dialysis patients;[1,2] pregnancy in dialysis is a rare condition that represents a valuable occasion for learning how to improve care in common situations;[3] and pregnancy in dialysis is an achievement that becomes possible thanks to a strong relationship between patients and physicians.

As all unusual or new situations, however, pregnancy in dialysis patients challenges our knowledge and demands re-thinking many aspects of our practice, leaving several open questions still deserving answers.

The article by Mehandru et al.[4] is addressed at one of these issues: vascular access. While, at least in principle, the dialysis community agrees on the motto 'fistula first', there are many situations, not only limited to elderly, high comorbidity patients, in which this may not be feasible, or advisable, and a wise compromise between agreed guidelines and patient's will may be the only way to preserve one of pillars of care: a good patient–physician relationship.[5,6]

The article reports on three patients who conceived, two of whom had a successful pregnancy while on haemodialysis via a tunnelled catheter. None of these patients had catheter-related problems in pregnancy or after delivery, thus stressing the viability of this option in a situation in which all efforts to deliver an optimal dialysis should be done. The article reports that the three patients were on chronic dialysis before conception and 'discovered' in due time their pregnancy; they were all on dialysis since a

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Table 1. Reasons for choosing a tunnelled catheter or an AV fistula in a pregnant woman on chronic haemodialysis.

	Tunnelled catheter	AV fistula
Aesthetic issues	Less disfiguring, easy to hide (aneurysms, button-hole scars)	If correctly punctured and well-functioning, it may not be disfiguring; catheters limit activities like swimming and so on
Pain	No pain	Pain management is feasible in most cases (local anaesthetics, cryoanesthesia)
Need for surgery	Avoidance of surgery	An invasive procedure may be needed anyway in the case of an infected permcath Risks of surgery to be balanced with specific risks of catheters (infection, malfunction)
Possibility of failed AV access surgery	Avoids risk of AV access malfunction in particular in women with small or damaged vessels	A skilled surgeon may foresee wise solutions
Transplant	Temporary choice in patients waiting for transplantation	Transplanted patients: lower risk of infection after surgery in patients with high-grade immunosuppression in the case of late or non-functioning graft
Cardiac effects of vascular access	No risk for worsening the hyperdynamic state of pregnancy	A distal AV fistula is only rarely associated with a hyperdynamic status
Infections	When correctly managed, tunnelled catheters are compatible with a long infection-free duration	Lesser risk of infection
Dialysis efficiency	Tunnelled catheters may allow high blood flow if correctly managed in women without coagulation problems (which may also affect AV fistulae or grafts)	Better function, better dialysis; however, not all AV fistulae have an optimal function
Access in daily dialysis	Lesser risk for catheter malfunction, no pain, no risk for fistula dysfunction	Daily dialysis is not necessarily associated with risk for vascular access dysfunction, but this should be balanced with the characteristics of the vascular access

AV: arteriovenous.

short time (5–12 months). The authors do not report on residual renal function (probably present, on the account of the short interval between dialysis start and pregnancy, and important in the management of these patients, and in the preservation of fertility) and on dialysis schedules, but conception demonstrated by itself the attainment of a good metabolic balance, in spite of the well-known limits of the dialysis catheters.[1] There is no indication whether pregnancy was desired or unexpected, but the short delay between conception and discovery of pregnancy suggests that this possibility was at least considered by the patients.

While it would be important knowing more on pregnancy outcomes, such as birth weight, presence of intrauterine growth restriction and on the dialysis schedule (how many hours? 5–7 days per week?), the article's message is concise and clear: a tunnelled catheter is compatible with dialysis in the most delicate moment of a woman with end-stage kidney disease: pregnancy.

There are many reasons why this choice, that is justified by the authors as following the patients' wish, may be advantageous and allow a safe and excellent dialysis (Table 1).

Information on vascular access in pregnant women is scant. Different approaches may be considered between women on dialysis already on a well-functioning tunnelled catheter and newly placed catheters: while, as reported by Mehandru et al.,[4] a tunnelled catheter in a woman already stabilised on outpatient dialysis, who has shown being able to take correct care of it and who has freely chosen this option, is a reasonable choice, compatible with good outcomes (or, in other words, a lack of negative interference of the vascular access on pregnancy outcomes), central venous catheters (CVCs) placed during pregnancy, especially in the hospital setting, may have a high risk of complications.[7] Of note, in this large series of 97 CVC placements in non-dialysis patients who were admitted for obstetric care at a tertiary care teaching hospital, one out of four had a major complication, half of which was infectious. This is a remarkably high complication rate, although the authors concluded that it was not different from that observed in the overall non-pregnant population. A similar conclusion was recently reached with regard to peripherally inserted catheters in pregnancy and puerperium.[8]

Regarding patients with an AV access, an interesting case report[9] warns against the risk of development of fistula aneurysms in pregnancy, but the frequency of this complication is still unknown, and we suggest that patients already treated with an AV access should continue to do so, with careful observation of the access.

The problem of whether or not shifting pregnant patients on peritoneal dialysis (PD) to daily haemodialysis sessions is still open. Because of increased abdominal pressure and later in pregnancy because of limited space, as well as for the need

of better depuration, daily haemodialysis might be considered, which for PD patients means inserting a CVC. However, the position of the Italian study group on kidney and pregnancy, based upon a systematic review on pregnancy outcomes in dialysis patients, encompassing also series and case reports on PD, is more flexible, suggesting that carefully adapted PD may be a sound therapeutic option, in particular, in women with residual renal function.[10,11]

Finally, the article by Mehandru et al. raises another issue: the authors underline that they counselled the patients about creation of an AV fistula and that the patients preferred a catheter on the account of lesser aesthetic impact, avoidance of an invasive procedure, refuse of pain. We might object that AV fistulae are not necessarily disfiguring and that pain management may be effective, provided that the vascular access is well functioning. Their legitimate answers, however, indicates that much is still to be done on this issue. Definitely, one size does not fit all.

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