Never say never in medicine: successful pregnancy in a hemodialysis patient despite tubal ligation

Roohan Khan^{1,2} · A. Ahsan Ejaz¹ · Abhilash Koratala^{1,3}

Received: 4 October 2017 / Accepted: 24 January 2018 / Published online: 1 February 2018
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To the editor,

The frequency of conception among women of childbearing age with chronic kidney disease and end-stage renal disease (ESRD) on dialysis is very low with a reported incidence of 0.3–1.5% per year [1]. Reduced fertility in this patient population corresponds to hormonal aberration with loss of pulsatile surge of gonadotropin-releasing hormone and luteinizing hormone, and raised prolactin levels resulting in anovulation, amenorrhea, galactorrhea and infertility [1]. In addition, loss of libido and lack of vaginal lubrication contribute to the problem in these patients and if they do become pregnant beating all these odds, the risk of fetal demise is markedly elevated [2]. We recently cared for a dialysis patient, who became pregnant and delivered a live infant despite her ESRD status, advanced maternal age, active smoking and more interestingly, a history of tubal ligation. It has to be noted that the estimated 10-year risk of pregnancy after tubal ligation ranges from 0.8 to 3.7% in general population and therefore, expected to be negligible in ESRD patients [3].

A 41-year-old woman with a history of ESRD secondary to diabetes and hypertension, on hemodialysis for 2 years initially presented to the emergency room with complaints of ‘not feeling well’, intermittent nausea, vomiting and mild abdominal discomfort. She smoked one pack of cigarettes per day. An abdominal ultrasound incidentally demonstrated a live fetus with gestational age of 19 weeks. Surprisingly, she had an elective bilateral tubal ligation 12 years ago after her 2nd child and her menstrual cycles were irregular. She was discharged after intravenous hydration and counseled

to quit smoking. She continued thrice a week hemodialysis at her outpatient dialysis unit. During 22nd week of gestation, the patient presented to our institution with increased abdominal pain and vaginal bleeding. She was treated with bed rest, intensification of hemodialysis regimen with six sessions per week each lasting 6 h (36 h/week) using polysulfone filter with a membrane surface area of ~1.5 m², increased supplementation of water-soluble vitamins and adjustment of the target dry weight to allow appropriate weight gain [4, 5]. Her blood pressure remained in the range of 120–160/60–90 mmHg during this period and she was closely followed by the high-risk obstetrics team. Her pre-dialysis blood urea nitrogen remained less than 35 mg/dL on most occasions and blood hemoglobin levels ranged between 9.6 and 10.4 g/dL with adequate iron stores during this period. At 28 weeks gestation, she underwent cesarean section due to nonreassuring fetal heart rate tracing and gave birth to a live male infant weighing 860 g. The infant had Apgar scores of 2, 8 and 9 at 1, 5 and 10-min tests, respectively, required neonatal intensive care unit stay for less than a week and is currently doing well.

Our case has several teaching points. The incidence of pregnancy in ESRD patients with tubal ligation is exceedingly rare, but still possible. Any suspicion of pregnancy in these patients should lead to further testing by ultrasonography to detect fetal cardiac activity. It has to be noted that the serum beta HCG level is not reliable to diagnose pregnancy in dialysis patients, as it is known to be elevated in non-pregnant state as well. Once pregnancy is confirmed, intensification of hemodialysis regimen should be undertaken with 5–7 sessions per week to maintain a blood urea nitrogen less than 50 mg/dL at all times [5]. In addition, maintenance of optimal blood pressure and regular antenatal follow up with obstetricians specialized in taking care of high-risk patients is the key to successful outcomes. Had our patient been a non-smoker and started on intensive dialysis soon after the diagnosis of pregnancy, the fetal outcome could have been even better.

✉ Abhilash Koratala
akoratsla@ufl.edu

¹ Division of Nephrology, Hypertension and Renal Transplantation, University of Florida, Gainesville, USA

² Punjab Medical College, Faisalabad, Pakistan

³ College of Medicine/UF Health, 1600 SW Archer rd, Room CG 98, Communicore Building, Gainesville, FL 32610, USA

Author contribution statement

The authors have made substantial contribution to the preparation of this manuscript.

Compliance with ethical standards

Conflict of interest The authors have declared that no conflict of interest.

Human and animal rights (with IRB Approval number) This article does not contain any studies with human participants or animals performed by any of the authors. IRB approval is not applicable for a letter/single case study.

Registration of clinical trials Not applicable.

Informed consent Obtained for the publication of this case study.

Funding source None.

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