

**CASE REPORT**

Pregnancy in End Stage Renal Disease Patients on Hemodialysis

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Abstract

Pregnancy in patients suffering from chronic renal failure is still rare due to numerous factors that impair fertility. Even if pregnancy does occur pregnancy outcome with a live birth has a low success rate. Moreover there is a significant risk of worsening of renal disease in the mother. The purpose of hemodialysis is not only to maintain life but also to make the quality of life as normal as possible for the patient. Propagation of life is basic to all life forms and the ability to do so can be considered as a success in a patient of chronic renal failure. As patients of End stage renal disease rarely complain about sexual or gynecological problems, considering them trivial as compared to their more life threatening renal condition, it is the physicians role to be attentive to these aspects of the disease. We hereby report 2 cases of successful pregnancy managed on hemodialysis by Northwest Louisiana Nephrology

Key Words

Pregnancy, End Stage Renal Disease, Hemodialysis, Nephrology

Introduction

Pregnancy in patients suffering from chronic renal failure is still rare due to numerous factors that impair fertility. Even if pregnancy does occur pregnancy outcome with a live birth has a low success rate. Moreover there is a significant risk of worsening of renal disease in the mother. We hereby report 2 cases of successful pregnancy managed on hemodialysis by Northwest Louisiana Nephrology

Case Report

Case -1: A 33 year old black female ,4 th gravida, with no abortions in the past and 3 living offsprings. She had been diagnosed with hypothyroidism ,nephrotic syndrome and hypertension leading to ESRD .The patient was started on regular weekly hemodialysis in March 2004. 6 months after maintenance hemodialysis she presented with 4 weeks of amenorrhoea and distension of abdomen .She was found to be pregnant after measurement of serum HCG and pelvic Ultrasound.

In an attempt to achieve a term pregnancy she was started on 6 days a week of hemodialysis weekly with

each dialysis session lasting three and a half hours. Hemodialysis was done through Right sided Sub clavian Ash catheter. Dietary regime was liberalized in regards to protein consumption. Her eKt/v was above 1.5 suggesting excellent dialysis. She also received multivitamins and folic acid throughout the pregnancy.

She was put on hydralazine 150 mg daily to control BP after she remained hypertensive despite magnesium oxide and maximal dose of alpha methyl dopa. Cesarian section was performed at 27 and 3/7 weeks of gestation for non reassuring fetal status and malpresentation (transverse lie). She delivered a 1 pound 14 ounce female infant with an uneventful neonatal period. A year after , both mother and infant were in an excellent condition

Case 2 : A 28 year old black female with 1 living offspring and no abortions diagnosed as having hypertension ,anemia, ESRD secondary to polycystic kidney disease, metabolic acidosis and goiter. Patient had been advised dialysis but had refused. She presented with abdominal distension and amenorrhoea was found to

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Fig 1- Female Infant Delivered by the Patient on Day 2 of Birth



Fig 2- Female Infant Delivered by the Patient on Day 6 of Birth
be 12 weeks pregnant. Patient agreed to undergo dialysis once pregnancy was confirmed. Folate and Iron supplementation was started. Dialysis prescription was 3 and ¼ hours. Dietary regime also was liberalized in regards to protein. Her Hb ranged from 7.1 to 9.8.

As part of her medication the dose of her erythropoietin was increased to EPO 10,000 units to maintain a Hb of 10 gm/day.

At 14 weeks of gestation her BP was found to be 180/110 despite the treatment and she had developed hypertensive retinopathy. Her medication was increased from Norvasc 5mg qid to Norvasc 10 mg qid, Aldomet 500mg bid to 1 gm bid, Niforex 200 mg bid to Niforex 150 mg bid and Normodyne 300mg bid. At 29 weeks the obstetric team found that the fetal growth was lagging behind and the Doppler studies of the umbilical arteries were abnormal. Contraction stress test was found to be

positive and she was delivered by caesarian section resulting in a single viable girl weighing one and a half pound with an uneventful neonatal period.

Discussion

In 1971 Confortini *et al* (1) reported the 1st successful pregnancy in a 35 year old woman on chronic hemodialysis. The largest study -Registry of pregnancy in dialysis patients showed 2% of patients on dialysis became pregnant over a 4 year period (2). The estimated frequency of conception in patients on dialysis is within a range as variable as 1.4% per year in Saudi Arabia to 0.5% in USA(3). The reduced fertility is due to anovulation and hyperprolactinemia leading to oligomenorrhoea seen in female patients on dialysis (4) Other factors that contribute are reduced libido due to altered human chorionic gonadotropin pulses and reduced renal leptin clearance (5,6). Leptin levels are known to be high in obese women as well and may be a contributory factor to the infertility observed in them. Leptin has been shown to affect the hypothalamo pituitary axis through neuropeptide Y and high affinity binding sites have been detected in the hypophalamus. Even if pregnancy does occur in a patient of chronic kidney disease a study done in Japan showed that it resulted in spontaneous abortion in 56% of patients, 11% developed still births, 14% had neonatal deaths, 18% had therapeutic abortion, approximately 40% abortions occurred in 2nd trimester (7). The outcome of pregnancies in such patients has markedly improved from approximately 20% live births during the 1980s (8) to 85% surviving infants according to case reports published in Turkey in 2004 (9). It has been shown that the prognosis for successful conclusion of pregnancy is better for patients who begin dialysis after the onset of pregnancy as compared to patients who are already on dialysis (72.6% and 37.5%) respectively (2). In our case we had patients belonging to both groups and both had viable child births.

An increase dose of dialysis with a weekly kT/v of 6-8 or dialysis 5-6 days/week is considered beneficial (10). We were also dialyzing both patients 6 days a week. In 1997 recommendations had been published for the most appropriate treatment for patients on dialysis (4) (Table 1). These were the basis for treatment in both patients.

**Table 1. Recommendations For Patients on Dialysis**

1. Dialysis regime must maintain blood urea levels at 17 mmol/L (102.4 mg/dL).
2. If treating with hemodialysis, 5-7 sessions per week should be carried out, with minimum heparinization and low ranges of ultrafiltration.
3. If treating with peritoneal dialysis, reduce the volumes of dialysis solution (1.5 L) and increase the frequency.
4. Adapt the amount of calories and proteins: protein ingestion: 1 g/kg/day, adding 20 g/day for fetal growth. Add supplements of water-soluble vitamins and zinc.
5. Treatment of hypertension must be done under strict supervision and with pharmacological adaptation. Correct anemia based on guidelines for the management of anemia in renal disease patients as per NKF-K/DOQI, reinforcing therapy with erythropoietin (compatible with proper blood pressure control) to keep hemoglobin above 10 g/dL and trans-ferrin saturation above 30%.
6. Prevent metabolic acidosis.
7. Manage mineral metabolism; avoid hypo- and hypercalcemia.
8. Prevent hypomagnesemia with adequate dialysis baths and eventually with oral supplements.
9. Treat premature start of labor with beta-agonists and magnesium sulfate.
10. Reinforce fetal monitoring, especially during hemodialysis sessions.

Conclusion

Women on dialysis who wish to conceive or continue their existing pregnancies should be given special antenatal and neonatal care. Joint efforts of nephrologists, dialysis unit staff, nutritionists and obstetricians can help to make the pregnancy successful. Careful attention need to be paid to dialysis strategy, anemia control, fluid balance, control of hypertension and nutrition. It is appropriate that these patients should be managed in a high risk pregnancy facility including a neonatal intensive care unit. In patients who have already completed their family contraception should be advised as pregnancy can occur even after many years of being on dialysis.

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