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Chronic Hemodialysis and Pregnancy in Full Dialysis Patients: Result from 2 Successful Cases

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ABSTRACT

This paper presents two successful pregnancies in dialysis patients, focusing on the consequences and treatment requirements for further pregnancies in this population. The study emphasizes the importance of appropriate patient management and monitoring to ensure a safe course of risk pregnancies on dialysis. Exclusion criteria for planned pregnancies on renal replacement therapy are also discussed. Comparatively, the rates of malformation in pregnancies under dialysis therapy are significantly lower than in pregnancies after kidney transplants under corresponding immunosuppression.

The first case involves a 26-year-old dialysis patient with advanced diffuse glomerular and tubulointerstitial scarring in benign nephrosclerosis, who became pregnant while on dialysis. The patient had not been adequately informed about the possibility of pregnancy and was initially recommended to have an abortion. However, she opted to proceed with the pregnancy, and with appropriate dialysis optimization, a healthy child was delivered via cesarean section in the 30th week.

The second case features a 20-year-old dialysis patient with chronic interstitial inflammation and focal tubular atrophy of unknown origin. In this planned pregnancy, the entire procedure was coordinated with the obstetrics department from the outset. The patient had successful pregnancy outcomes, with regular sonographic checks, proper management of dry weight, and no significant fluctuations in blood pressure or anemia.

Requirements for a successful pregnancy in dialysis patients include having no serious underlying disease other than end-stage renal disease (ESRD), maintaining blood pressure within the guidelines for pregnant women, maintaining urea levels below 200mg%, ensuring appropriate hemoglobin (Hb) levels through post-dialysis measurements, maintaining iron supplementation based on serum ferritin levels (above 200 ng/l), and adhering to disciplined fluid intake.

In conclusion, effective long-term dialysis can normalize the female cycle at childbearing age, enabling successful pregnancies in dialysis patients with no other serious underlying diseases. The main challenge during pregnancy is the development of hydramnios, likely due to increased placental permeability for free fluid. Adequate dialysis and patient compliance are essential for a successful pregnancy outcome in this population.

INTRODUCTION

Two successful pregnancies in dialysis patients are reviewed with regard to the consequences for further pregnancies in dialysis patients. The treatment and monitoring requirements that allow a safe course of risk pregnancies on dialysis are listed, and exclusion criteria for any planned pregnancies on renal replacement therapy are also presented. It is important to note that the rates of malformation in pregnancies under dialysis therapy are significantly lower than in pregnancies after kidney transplants under corresponding immunosuppression [1-3].

Casuistic

The first patient was 26 years old when she became pregnant. She had already been on dialysis for one year.

Diagnosis: Histologically confirmed advanced diffuse glomerular and tubulointerstitial scarring in benign nephrosclerosis.

The patient had been transferred from a University Medical Centre. She had been told about the possibility of pregnancy that she did not need to use contraception as pregnancy was ruled out.

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Under optimization of the dialysis, the cycle then returned to normal, but this was not communicated to the treating doctors. Consequently, there was no discussion about a possible pregnancy and long-term dialysis. When the patient then complained of diffuse lower abdominal complaints, sonography showed an intact pregnancy. The patient was transferred to the University Hospital in Bonn, where it was decided to recommend an abortion. She did not agree to this measure and returned to her home center overnight. Here, dialysis during pregnancy was taken over in cooperation with the obstetrics department of the hospital in Siegburg. A healthy child could be delivered by means of a section, but already in the 30th week.

After the patients returned to their "home center", the dialysis frequency was increased to six times per week. Ongoing HB checks were performed after each dialysis and the erythropoietin dose was adjusted to the value. In addition, the ferritin level was maintained at about 1000 ng/l. Below this level, anemia could be safely avoided.

The prerequisite for a positive pregnancy was fluid retention by the patient. In informative discussions, excellent cooperation with the doctor and nursing team was achieved.

Four times a week, the obstetrics department in Siegburg carried out a sonography of the amniotic sac. Special attention was paid to the hydramnion. It turned out that without any edema, more fluid was deposited in the amniotic sac as soon as the dry weight was exceeded by more than 800 g. This led to the fact that in the fourth week, the amniotic sac was filled with fluid.

This finding led to a further lowering of the dry weight in the fourth month, and only in the further course was there an increase of 1.2 kilos. Due to this restrictive behavior with regard to weight, there was also no derailment of the blood pressure throughout the entire course.

The second patient was 20 years old when she became pregnant. She had also been renal insufficient for one year. After she got married, the couple desired to have children.

Diagnosis: Histology revealed a chronic inflammatory process in the interstitium with focal accentuated tubular atrophy. In the end, the cause of the kidney failure remained unclear.

This patient was also transferred from another center. Based on the experience with the previous successful pregnancy in our center, a successful pregnancy under dialysis was also completed here; the child was healthy. Again a conclusive sectomy was necessary.

As it was a targeted pregnancy, the entire procedure was immediately coordinated with the obstetrics department of the Siegburg hospital. This means that after discontinuing the pill, the couple used conservative contraception until the cycle returned to normal. Then the pregnancy occurred as planned. From the second month onwards, sonographic checks of the pregnancy were initially carried out every two days, and from the 12th week of pregnancy the checks were increased to six times a week. Depending on the amount of amniotic fluid, the dry weight was determined. Hb measurements were again taken at the end of dialysis to determine the appropriate erythropoietin dose. There were no problems with anemia and the blood pressure did not show any pathological fluctuations.

Requirements for the Pregnancy of a dialysis patient

There must be no serious underlying disease other than ESRD.

The blood pressure setting must be compatible with the guidelines for blood pressure therapy in pregnant women.

The urea level as a sign of effective long-term dialysis should be below 200mg%.

The Hb value must be determined after dialysis so that the effective erythropoietin dose can be determined [4].

Iron supplementation must be based on serum ferritin levels and should be over 200 ng/l.

The patient must be willing to be disciplined about drinking.

Controls under dialysis

From the tenth week onwards, an increase in dialysis frequency is mandatory. At least three long-term dialyses should be performed; the others serve primarily to stabilize the dry weight so that hydramnios can be avoided. An obstetric department should be integrated into the entire course of such a problem pregnancy right at the beginning. Only through sonography by an experienced obstetrician can the problem of hydramnion be avoided and the dry weight effectively controlled. Laboratory checks for urea and ferritin should be done weekly for Hb after each dialysis [5].

CONCLUSION

Effective long-term dialysis leads to a normalization of the female cycle at childbearing age if no other underlying diseases are present. The main problem in the course of pregnancy is the development of hydramnios. This is obviously due to the fact that the permeability of the placenta for free fluid is particularly increased. Due to frequent dialysis in advanced pregnancy, electrolyte shifts and pathological increases in retention values can be practically ruled out. Thus, an increased protein-rich diet can certainly be allowed in this phase, since the metabolic products do not accumulate but are dialyzed effectively.

However, it is clear that such a pregnancy can only led to success if the patient is appropriately incorporated.

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