

# Successful Pregnancies in Two Patients on Chronic Haemodialysis

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To discuss two pregnants with end stage renal failure.

Two pregnancies delivered successfully during 37<sup>th</sup> and 38<sup>th</sup> weeks of pregnancy.

Chronic renal failure patients who required dialysis can rarely become pregnant. Although there are some improvements in recent years, fetal survival is still about 50% in these patients. Most common complications are hypertension, polyhydramnios, and preterm labor. Spontaneous delivery occurs at an average of 32<sup>nd</sup> gestational week. Prematurity due to preterm labor is still the most common reason for neonatal mortality. Polyhydramnios can be prevented by increasing the dialysis dose and so duration of gestation can be prolonged and fetal survival improves. Because of two dialysis patients managed in our hospital, we aimed to investigate the recent data about chronic renal failure patients that required dialysis during pregnancy.

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**Key Words:** Chronic renal failure, Pregnancy, Delivery route

Pregnancy rates in patients with chronic renal failure that required dialysis is 1-7 %.<sup>1,2</sup> Pregnancy occurs in patients who have borderline renal functions rather than the patients require dialysis. In patients who have borderline renal functions, pregnancy worsens the renal functions and dialysis may be necessitated.<sup>1,3</sup> The pregnancy outcomes are worse in the patients that required dialysis after conceiving than the patients that dialysis required before conceiving.<sup>2</sup>

In chronic dialysis patients, pregnancy is troublesome. Maternal hypertension, abruptio placentae, obstetric hemorrhage, intrauterine growth restriction, preterm labor, and anemia are most often complications.

In spite of improvements in dialysis techniques and easily available fetal well-being tests in recent years fetal survival rate is still 30-50 %.<sup>4,5</sup>

Because of two dialysis patients managed in our hospital, we aimed to investigate the recent data about chronic renal failure patients that required dialysis during pregnancy.

## Case Report

### Case 1:

Thirty-four year-old, gravida 4, para 3 patient referred to

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our hospital with the diagnosis of chronic renal failure during her 33<sup>rd</sup> weeks of pregnancy. In her history she had two term vaginal deliveries and in the third pregnancy intrauterine fetal death had been occurred due to preeclampsia in the fifth month of pregnancy. Then acute renal failure and subsequently chronic renal failure had been occurred after the medical termination by vaginal route. She was under dialysis for four years before admitted to our clinic.

Laboratory findings were as follows: Hb: 8.9 g/dl, BUN: 23mg/dL, Creatinin: 2.8mg/dl. Her blood pressure was 100/60 mmHg. She was hospitalized and managed with dialysis 6 times a week (18-20 hours a week) by a nephrologist. Renal and liver functions, fluid- electrolyte balance and blood count were followed in intervals. She had not any abnormal findings except anemia. Anemia was treated by intravenous iron. The fetus was evaluated regularly with USG, Doppler USG, and NST for fetal well-being. When the pregnancy reached 36 weeks and 5 days spontaneous uterine contractions begun and vaginal delivery occurred. The baby was male, his birth weight was 2720 g, and 1<sup>st</sup> and 5<sup>th</sup> minute APGAR scores were 8 and 9 respectively.

### Case 2

Thirty- one year- old, gravida 7, para 4 patient at 37 weeks and 5 days of pregnancy according to her last menstrual period referred to our hospital because of vaginal bleeding. In her history her sixth pregnancy had been complicated with hypertension and in the fifth gestational month intrauterine fetal death has been occurred. After medical termination of the pregnancy, acute renal failure developed and dialysis initiated. The patient was on dialysis treatment for two years when admitted to our unit. There was IUGR and fetal measurements were consistent with 34 weeks of pregnancy. Cesarean section was performed due to placental detachment findings at ultrasound scan. Birthweight of the female fetus was 2220 g and 1. and 5.

minute APGAR scores were 6 and 8, respectively. Postoperative Hb level was 9.5 g/dL, BUN was 27 mg/dL, and creatinine was 2.9 mg/dL. Postoperative blood pressure was about 160/90 mmHg. Postpartum hemorrhage was developed because of uterine atony. Hemorrhage was controlled via fundal massage, oxytocin and misoprostol.

## Discussion

Early diagnosis of pregnancy in end stage renal disease requires careful attention. Irregular menses, amenorrhoea and nausea are common in this group and a mildly elevated beta-subunit of human chorionic gonadotropin observed in some patients with renal failure may give a false-positive pregnancy test.<sup>1-3</sup> Late diagnosis delays intensive antenatal care, reducing successful outcome. As recommended, we used transabdominal sonography to confirm pregnancy and assessed gestational age as soon as we were informed about the pregnancy.

Fertility of patients on dialysis is low. The US Registry reported that 2.2 % of the female patients of childbearing age became pregnant over a 4- year period (0.5/100 patient years), while the Belgian National Survey noted 0.3/ 100 patient years.<sup>4,5</sup> However, the number of successful pregnancies has improved over the years in dialysis patients.

Obstetric complications are much more during pregnancy in patients with renal failure that required dialysis. Spontaneous abortion is occurred in 40 % of all cases.<sup>3,6</sup> If abortion is not occurred most common and important complication is preterm labor. Besides, 70 % of all cases are complicated by maternal hypertension<sup>4</sup> and at least half of the cases with the maternal hypertension is associated with abruptio placentae, obstetric hemorrhage, and anemia.<sup>7,8</sup>

Usually pregnancies last up to 32<sup>nd</sup> gestational week.<sup>3,4</sup> Because of preterm labor associated with prematurity, perinatal mortality is very high.

Stabilization of maternal hemodynamics is achieved with increasing the dialysis dose and thus development of polyhydramnios is prevented by blocking fluid transport to the 3<sup>rd</sup> space of the body. Prevention of polyhydramnios prolongs duration of gestation and subsequently increases fetal survival rates. Recommended dialysis frequency is 3 to 6 times a week in the literature. The duration of dialysis is reported as 16- 24 hours a week but some authors reported that > 20 hours dialysis in a week didn't improve the fetal survival.<sup>2-4</sup> Most of the centers apply 6 times a week. Maternal hypotensive attacks can be minimize by lowering the ultrafiltration amount. So hallowfiber that has smaller surface area must be used. Level of serum electrolytes and acid base balance must be under control. Because anemia is a common complication, the hemoglobin level greater than 10 g/dL is aimed. Iron and ery-

thropoietin preparations must be used. Water-soluble vitamins, especially folic acid (1 mg/ kg) must be given during pregnancy.<sup>9</sup> Acidosis or alkalosis must be prevented during dialysis. So bicarbonate must be well regulated. Protein intake must be increased by the initiation of the dialysis (1.8 g/kg/d as an optimal amount).<sup>8</sup> If hypertension is diagnosed, treatment strategy must be aimed to keep diastolic tension about 80-90 mm Hg.

In the first case, after the hospital admittance of the patient at 33<sup>th</sup> gestational week the management of the patient was made with a nephrologist. High dosage dialysis was applied as 6 times a week and a total duration of 18-20 hours in a week. During follow up there wasn't any complication except anemia. In 37<sup>th</sup> gestational week she delivered spontaneously when she was in her 4<sup>th</sup> week of follow-up in our hospital. We think that the continuation of the gestation without polyhydramnios and other complications up to 37<sup>th</sup> gestational week was due to the high dose of dialysis.

The other case had vaginal bleeding, maternal hypertension, abruptio placenta, intrauterine growth restriction, and postpartum uterine atony. All these findings are consistent with the literature show there is increase in pregnancy complications with end stage renal disease requiring dialysis.

Mean fetal weight usually is low due to prematurity in these cases. But IUGR is occurred in the 10 % of fetuses. There was IUGR in our second case. We think this condition could be depended on maternal hypertension. Urgent cesarean section was performed due to placental ablation.

The route of the delivery must be decided on the setting of obstetric indications. Because the obstetric complications are often, cesarean delivery rates are increased and approximately 50 %.<sup>2,4</sup>

In both cases the processes were ended with fetal survival and BUN levels were <50 mg/dL before the initiation of dialysis. So this finding is consistent with the hypothesis that highest fetal survival rates are seen in the patients whose BUN levels are <50 mg/dL before the initiation of dialysis.<sup>6,10</sup>

In conclusion renal failure patients that required dialysis during pregnancy are categorized as high risk pregnancies and follow-up of these cases needs intensive multidisciplinary approach by applying high dosage dialysis. Due to preterm labor, prematurity is a very common complication and although recent advances are promising, fetal survival is still about 50%.

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