Successful Birth in a Hemodialysis Patient with SLE

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Noriaki Yorioka, MD, Second Department of Internal Medicine, Hiroshima University School of Medicine, 1-2-3 Kasumi, Minami-ku, Hiroshima City 734 (Japan) Dear Sir,

Pregnancy and child birth in hemodialysis patients remains a rare event [1-3]. Even more rare is the pregnancy of a hemodialysis patient with systemic lupus erythematosus (SLE) [3-6]. In this paper, we report such a patient who developed chronic renal failure secondary to SLE, became pregnant, and successfully carried to full term.

The patient, a 34-year-old female diagnosed with lupus nephritis at the Second Department of Internal Medicine at the Hiroshima University School of Medicine in 1984, began hemodialysis on March 8, 1991 at the Second Department of Internal Medicine at Nagasaki University School of Medicine. She was transferred to Sakuramachi Clinic in Nagasaki City on April 20, 1991. Here, she was maintained on a 3-hour session of hemodialysis twice a week (total of 6 h/week) without any signs of complication or relapse of SLE. On October 2, she was found to be 5 weeks and 4 days pregnant. A guideline for her therapy was established as follows: blood urea nitrogen (BUN) less than 60 mg/dl, creatinine (Cr) less than 6 mg/dl, and hematocrit (Ht) more than 30%. Immediately afterwards, she began a hemodialysis regimen at 4 h, 3 times a week (total 12 h/week). However, this regimen was found to be insufficient in reducing her levels of BUN and Cr. Therefore, beginning mid-November, the frequency of hemodialysis was increased to a 4-hour session, 4 times a week (16 h/week). In February, 1992, she moved to Hiroshima and was transferred to our hospital on February 15, at 25 weeks and 2 days into her pregnancy. The initial examination was recorded as follows: height: 151.6 cm; weight: 52.3 kg; pulse: 72/min and regular; blood pressure: 148/80 mm Hg; temperature: 36.2°C. Bulbar conjunctivae were not icteric and palpebral conjunctivae were not anemic. The heart and lungs were negative for percussion and auscultation. The abdomen measured 88.5 cm at its maximum and the fetus

was 31 cm long at sonography. No peripheral edema or neurological abnormalities were observed.

Laboratory results: laboratory data prior to the first hemodialysis session at our hospital was as follows: (1) urinalysis: specific gravity was 1.009 with a positive urinary protein and others being close to normal; (2) CBC: RBC count was low at $333 \times 10^9/\text{mm}^3$, hemoglobin and hematocrit were 11.2 g/dl and 33.1%, respectively; (3) blood chemistry: total protein and cholesterol were within normal range and minerals were also almost normal; (4) renal function: BUN, Cr and uric acid were 47, 6.6 and 7.3 mg/dl, respectively, and (5) a serological examination found no significant abnormalities. The anti-nuclear antibody, anti-DNA were within normal limits. CH₅₀ was 40.1 U/ml with a negative lupus anticoagulant. Clinical course: her clinical course in the previous hospital and that in our hospital is shown in figure 1. In addition to her examination at our department on the 15th of February, she was also examined at the gynecology unit in our hospital. On February 17, due to abdominal rigidity, she was admitted to the hospital. This condition led us to believe that she would give birth prematurely. Restricting her to strict bed rest, her condition stabilized and the pregnancy continued satisfactorily. Blood examinations on February 20th showed BUN of 35 mg/dl and Cr of 6.9 mg/dl. At 26 weeks and 4 days into her pregnancy, more dialysis was called for, i.e. a 3-hour session, 6 times a week with the exception of Sundays (18 h/week). With this

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BP 160
(mmHg)
120

Previous hospital—*■ I—▶ Our hospital

(mg/dl)

Weeks 0 5 10 15 20 25 26 27 28 29 30 31 32 33 34 35

Fig. 1. Clinical course of the patient.

regimen, she maintained BUN and Cr levels at a range of 31-37 and 5.2-6.3 mg/dl, respectively, prior to the Monday dialysis. A hollow-fiber-type cellulose acetate membrane (JMS, Ltd., Japan) was used as a dialyzer with a bicarbonate solution dialysate (Kindaly Ltd., Japan). Despite 6 sessions of dialysis a week, urinary output of 1,200-1,500 ml/day continued, so fluid retrieval was not necessary. The changes in blood pressure were controlled at a minimum level during hemodialysis. There were no abnormalities according to fetal cardiac echo doppler measurements. Without further abnormalities she went into labor on April 22. During gestation, SLE activity remained low without steroid treatment. Exactly 35 weeks into her pregnancy, she gave natural birth to a boy weighing 2,478 g. The Apgar score was 9 points. The baby had no apparent abnormalities and, likewise, the echocardiogram showed nothing abnormal. The mother's postpartum was fair. She was

discharged on May 6, to continue hemodialysis as an outpatient. The urea and creatinine clearances following birth were 3.3 and 4.8 ml/min, respectively.

In summary, this successful delivery may be attributed to the hemodialysis which was frequently carried out during her pregnancy, the proper control of SLE activity and the close communication between the staff at the Department of Gynecology/Obstetrics and Pediatrics.

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