Serial fetal heart rate monitoring in monozygotic twin, one of which was anencephalic

O. Kurauchi, T. Ishida, Y. Ohno, H. Ando, S. Nomura, S. Mizutani, Y. Tomoda

Department of Obstetrics and Gynecology, Nagoya University School of Medicine, 65 Tsuruma-cho, Showa-ku, Nagoya 466, Japan

Received: 9 May 1994/Accepted: 30 August 1994

Abstract. This report describes FHR patterns of monozygotic twins, one of whom was anencephalic. The recording were made from 20 to 36 weeks of gestation. Differences were observed in the FHR patterns after week 28.

Key words: Fetal heart rate – Anencephalic fetus – Monozygotic twin

Introduction

The fetal heart rate (FHR) is influenced by the central nervous system and by biochemical factors. Recently, we had an opportunity to monitor fetal heart rate serially from week 20 to 36 weeks in monozygotic twins, one of which was anencephalic.

Case report

At 16 weeks gestation, a nulliparous 32 year old woman visited Nagoya University Hospital. Ultrasound examination showed a twin pregnancy and one twin was anencephalic. At 17 weeks, the patient was admitted to hospital for threatened abortion and subsequently premature labor. Ritodrine was started at week 24 and continued till week 36. Both fetuses were female and were delivered by cesarean section at week 36; the birth weights of the normal and anencephalic fetuses were 2260 g and 1790 g, respectively. The anencephalic infant died immediately after delivery. The mother and the normal infant were discharged on the 14th postpartum day.

During pregnancy fetal monitor strips were obtained weekly on the Toitu MT-430 fetal actocardiograph, which displays simultaneous twin FHRs and also movements of each twin. The patterns for the fetuses were compared. A monochorionic placenta and concordance of HLA types (A, B, C, DR and DQ) suggested monozygosity. The morphological and histological examination of the central nervous system of the anencephalic fetus was conducted by autopsy. The spinal cord was aplastic in the cervical region.

Up to 30 weeks, both fetuses showed a similar rise of FHR baseline in response to ritodrine (Figs. 1 and 2). Thereafter a difference was observed (Fig. 3). Variability of more than 5 beats/min-
Fig. 1. FHR pattern at 25 weeks of gestation. No difference in the FHR baseline of the twins. Variability was seen in the normal fetus. The anencephalic fetus is shown as dark line. The paper speed was 1 cm/min.

Fig. 2. FHR pattern at 30 weeks of gestation. The FHR baseline was still the same. The normal fetus showed accelerations, whereas the V-shape or sometimes W-shape decelerations appeared in the anencephalic fetus.