CASE STUDY

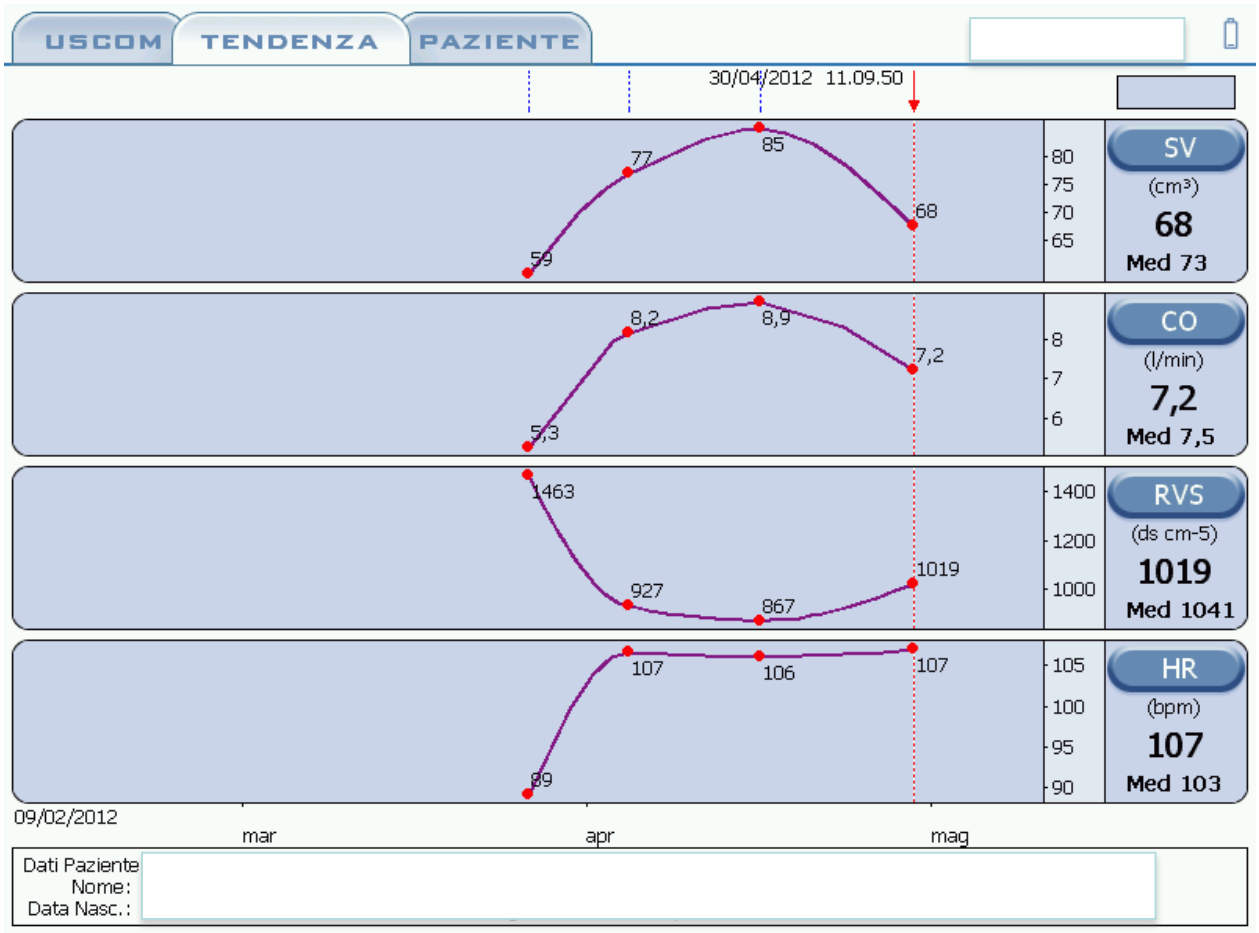
USCOM 1A in Maternal Medicine

Intrauterine growth retardation

The maternal hemodynamic profile is a window to the health of the developing fetus as it reflects the physiology of blood flow between the mother and baby. Abnormal maternal cardiovascular adaption is connected with hypertensive disorders and results in reduction in oxygen delivered to the placenta, a critical determinant of fetal well-being. Non-invasive evaluation of the maternal hemodynamics provides early insight into the parameters of the maladaptation and points to direction of treatment.

Presentation

During the 21st week of gestation this patient was diagnosed with intrauterine growth retardation (IUGR). The USCOM 1A exam showed hemodynamic measures of reduced Stroke Volume (SV) and Cardiac Output (CO) with increased Systemic Vascular Resistance (SVR).



Therapy

Initial therapy was begun with nitrates (Minitran 5 mg) added to 10 mg Norvasc which was prescribed for the pre-existing chronic hypertension. A good oral liquid intake was also suggested to guarantee good peripheral perfusion along with the effect of therapy. The increasing values over the following 4-5 weeks were monitored with the USCOM 1A with fetal growth being constant at about 150-200g every 15 days.

In late April, at 26 weeks gestation, the last measurements show that the SV and CO are significantly reduced and the SVR has begun to rise. A new ultrasound scan performed at that time confirmed fetal growth was arrested again. The patient was hospitalized at this point in time for further care.

Summary

USCOM 1A initially confirmed maternal cardiovascular maladjustment, which indicated that the pregnancy was at high risk of a poor outcome or even perinatal death. Monitoring the hemodynamics non-invasively kept the treating physician informed as to how the mother was responding to the effect of the therapy, which resulted in an increase of the gestational period from 21 to 26 weeks, and in an outpatient setting.

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