natal mortality and morbidity only second to prematurity. The two conditions are often associated. The relationshipè between birthweight espresse as percentile for gestational age and neonatal mortality and morbidity has been first documented more that 40 years ago by Lubchenko and others interoducing the concept of newborns Small for Gestational Age (SGA). This occurrence has been attibuted to defective fetal growth and the term Intrauterine retardation (IUGR) was introduced. For a long rtime SGA and IUGR became synonimous as the only possibilità to assess the fetal growth waas offered by checking the final result: the birthweight.

After the introduction in clinical practice of the ultrasonic fetal biometry it became possible to evaluate the fetal size aestimating also the fetal weight but more important to monitor the characteristic of the growth by serial mesurement. It became soon evident that the birthweight was not reflecting always the fetal growth.In fact in it possible to observe SGA newborns not growth retarded and others presenting BW over the 10th percentile that habe sufered of growth resrtiction in utero. By using BW or fetal aestimated weight the size of the clnical problem can be over- or under-aestimate. The term "retardation" has been substituted by "restriction" and today the definition of IOUGR should be that of a fetus that presents a growth inferior to the individialized expectation. Surprinsigly still now looking at the medical lietrature it is possible to find 30 different definitons of IUGR. It is evident that umniform and objective definition must be adepte

KÖ-16 [08:45]

Prediction of adverse pregnancy outcome

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Two main groups of adverse pregnancy outcomes are nowadays of utmost interest in obstetrics: preterm labour (PL) and placental diseases including Preeclampsia (PE), Intrauterine Growth Restriction (IUGR) and Intrauterine Foetal Death.

A new concept of prediction in obstetrics has emerged in the 90's with Nicolaides K. et alt.. An earlier identification of those patients at risk would allow an intensive and more accurate and personalized management algorithms of those, and it would allow initiating preventive strategies in those possible cases. There's wide evidence that preventive strategies should be applied early in the pregnancy in order to be more effective, especially in the case of aspirin and PE.

*We will first focus on preterm labour. Several parameters have been described as risk factors of PL. Nevertheless, the most important risk factor is a previous preterm delivery. Earlier the previous delivery was, higher the risk of PL in the current pregnancy would be. Moreover, the risk would be higher as more previous deliveries the patient had.

Nevertheless, only 10% of those patients with a preterm delivery presented risk factors at first trimester.

A prediction strategy at second trimester has been validated as a screening test in low-risk population. Cervical length, evaluated in the second trimester anomaly scan, has proved to identify patients at risk for preterm delivery. 1 out of 5 patients with cervical length below 25 mm will delivery before 35 weeks of gestation.

Prevention strategies mainly based on Progesterone and cervical pessary have proved their efficacy in those patients with short cervical length, reducing the incidence of preterm delivery and the incidence of perinatal morbidity almost 40%.

*We will focus in a second term in the prediction of PE and IUGR.

In order to understand the recent evolution in the prediction algorithms of PE, it is essential to focus on the current classification of PE according to the gestational age at onset of the disease. In recent years it has been accepted that early-onset and late-onset PE are associated with different biochemical, histological and clinical features: whereas the early-onset form is almost invariably associated with placental insufficiency and growth restriction and it mostly contributes to adverse maternal and perinatal outcomes , the late-onset form is more prevalent and in general, placental involvement is minimally present. Moreover, it has been demonstrated that having a PE in a previous pregnancy considerably increases the risk in the following pregnancy.

There are multiple markers of PE, some of them are known at booking and some of them all along the first two trimesters of pregnancy. The former are based on demographic characteristics as medical or obstetric history and anthropometric maternal characteristics and they would generate a prior-risk patient. The latter markers are secondary to the pathophysiological changes preceding the onset of the disease, mainly due to a defective trophoblastic invasion. These markers are especially associated with early-onset PE. As there is no single test that predicts PE with sufficient accuracy to be clinically useful, the current strategies are based on multiparametric algorithms based on maternal history, biochemical markers and uterine Doppler evaluation.

As we have mentioned this approach will be useful in the prediction of early-onset PE but not for late-onset PE. A third trimester prediction strategy has been proposed for the more frequent form of PE. Prevention treatments would not be useful but those patients identified at high risk could benefit of a more intensive monitoring.

The prediction of IUGR would follow the same scheme as PE. Early IUGR could acceptably be predicted in the first trimester using a multiparametric strategy whereas the pre-

diction of late-IUGR could be hardly be made in third trimester.

Placental growth factor (PlGF) has recently emerged as a promising biomarker in the prediction of placental disease, including intrauterine foetal death.

Prediction of severe disease would be possible early in the pregnancy allowing to activating prevention strategies. Deeper investigation should be carried on for the prediction of late and mild placental disease.

KÖ-17 [09:15]

The role of ultrasonography in prediction of obstetric hemorrhage

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Obstetric haemorrhage is the single most significant cause of maternal mortality worldwide accounting for 25–30% of all maternal deaths. Life-threatening postpartum haemorrhage (PPH) occurs in approximately 1:1000 deliveries in the developed world. Although the risk of dying from pregnancy decreased dramatically during the last century, 60–90% of deaths from PPH are potentially preventable with better medical care.

Ultrasound is an unique diagnostic technique for many obstetric hemorrhage.

Typies of obstetric hemorrhage:

Antepartum (early and late) hemorrhage

- Early pregnancy hemorrhage: abortion (medical or spontaneous) and ectopic pregnancy
- Late pregnancy (antepartum) hemorrhage: placenta previa, placental abrubtion, placenta accreta (accreta, increta & percreta) and vassa previa.

Early pregnancy hemorrhage: abortion (medical or spontaneous) and ectopic pregnancy. Vaginal bleeding in the first trimester of pregnancy can be caused by several different factors. Bleeding affects 20% to 30% of all pregnancies. Transvaginal ultrasound is an excellent diagnostic imaging technique for early normal and complicated pregnancy. The hemorrhages arising from uterine anomaly, presence of subamniotic and subchorionic hematomas, abnormal placentation, abnormal embryonic location and the other pathological situations are well diagnosed by ultrasound in early gestational age.

Late pregnancy (antepartum) hemorrhage: Antepartum haemorrhage is defined as bleeding from the genital tract after 24 weeks of gestation and has an incidence of 2-5% of all pregnancies beyond 24 weeks. The most causes of antepartum bleeding are placental abruption, placenta previa, abnormal placentation and uterine rupture. Central and marginal subchorionic hemorrhages of placental abruption are well diagnosed by ultrasound examination. Placenta previa can be well diagnose by transvaginal ultrasound during all stages of pregnancy, especially in the second half of gestation. Abnormal placentation is also can be diagnosed by transvaginal ultrasound in early period, especially if placenta located on uterine scars, such as cesarean section. If the obstetric hemorrhage originated from uterine rupture, intra abdominal hematoma or fluid can be diagnosed by ultrasound examination.

Intrapartum hemorrhage

Intrapartum hemorrhage complicates about 5% of all deliveries. Uterine rupture, cervical rupture, epysiotomy, abruption placenta, placenta previa variations and prlolnged labor.

Postpartum hemorrhage

- Early postpartum hemorrhage: uterine atony, uteine rupture, uterine inversion, retained products, invasive placentation, intrauterine hematom, myomas, coagulopathy and lacerations of genital tract (lower and upper)
- Late postpartum hemorrhage: retained products, uterine enlargement, iInfections, subinvolution of placental site, coagulopathy and uterine varix

Postpartum haemorrhage (PPH)

The incidence of postpartum hemorrhage is about 1 in 5 pregnancies, but this figure varies widely due to differential definitions for postpartum hemorrhage. PPH can be divided into 2 types: early (<24 hours after delivery) and late (24 hours to 6 weeks after delivery). Most cases of PPH (>99%) are early. PPH can be categorized as an abnormality of one or more of the following: uterine tone, retained tissue, trauma and coagulopathy. Uterine atony, defined as the lack of efficient uterine contractility after placental separation, is the most common cause of PPH and complicates approximatelly 1 in 20 deliveries. Diagnosis of uterine atony is difficut made by ultrasound, however, the ultrasound examination is usefull for if presence intrauterine hematoma, retained tissue, uterine fibroids. Abnormal placentation is abnormal attachment of the placenta to the uterine wall and includes accreta, increta, and percreta, depending on the extent of uterine invasion. Important risk factors are the presence of placenta praevia and a history of prior Caesarean deliveries. In generally, abnormal placentation can be diagnose by ultrasound antenataly. In addition, the ultrasound examination is usefull for retained tissue, uterine infection and the other pelvic organs pathologic situations.