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manual segmentation. We compared the whole-placenta analysis to random samples with different placental volumes.

Methods: We performed a BOLD MRI acquisition in normoxia, followed by a period of oxygen supply until placental oxygen saturation in a cohort of normal pregnancies. After a non-rigid registration to correct motion artifacts, a whole-placenta mask was manually segmented. Thereafter, three random samples were automatically generated within the whole-placenta mask, mimicking random biopsies and covering 10%, 30% and 50% of the placental area. The signal change over time was modelled using a sigmoid function, from which the intensity of enhancement () and a temporal variation coefficient (min^{-1}, controlling the slope of the curve) were deduced. The parameters from the random samples were compared to the whole-placenta parameters.

Results: The mean differences in between the whole placenta and the random samples were 20.08%, 8.29% and 5.15% for the 10%, 30% and 50%-random masks, respectively. Subsequently, the ICCs were 0.91 [0.8, 0.96], 0.99 [0.97, 1] and 0.99 [0.99, 1] for the 10%, 30% and 50%-random masks, respectively. Similarly, the mean differences in (min^{-1}) between the whole placenta and the random samples were 32.13%, 10.25% and 7.71% for the 10%, 30% and 50%-random masks, respectively. The ICCs were 0.02 [-0.41, 0.45], 0.96 [0.91, 0.99] and 0.95 [0.88, 0.98] for the 10%, 30% and 50%-random masks, respectively.

In addition, the fitting failed in 3 cases for the 10%-mask, 2 cases for the 30%-mask and 1 case for the 50% mask, requiring new random samples.

Conclusions: Our results suggest that small random placenta samples do not reflect the functional parameters with precision, illustrating the presence of functional variations within the placenta.

EP01.55

Development of a tele-ultrasound program for primary care centres

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Objectives: Develop in our region (Chile) an obstetric tele-ultrasound model that can be implemented between primary care centres located in remote areas and without specialist doctors with more complex centres.

Methods: Primary health care centres meet the following conditions: 1) not having in-person or remote care by specialist doctors, 2) far from more complex care centres, 3) low population density, 4) availability of a midwife trained in performing ultrasounds for primary care, 5) availability of ultrasound machines with digital technology, 6) availability of technological means (video capture cards, computer, internet access, etc.) and 7) management protocols. At established times they were connected with a third level centre with specialists in obstetrics and gynecology and subspecialists in Maternal Fetal Medicine.

Results: This model was implemented between a tertiary care centre (Valdivia) and 10 primary care health centres located (Porvenir, Puerto Williams, Angol and in the Los Ríos Region). With all of them, a good connection was established, achieving the transmission of good quality "online" ultrasound images of all ultrasound modes and reviewing the images stored in the RIS-PACS of the ultrasound machine. Engineers and technicians also occasionally participate in applications from different companies to solve technical problems with ultrasound machines.

Conclusions: This study shows that it is possible to perform obstetric tele-ultrasound between primary care centres and tertiary care centres. Thus, directly advise the execution of ultrasounds carried out by midwives in real time, review the RIS-PACS images on the ultrasound machines, carry out quality control, make obstetric management decisions in a more informed manner, and avoid expenses and risks in unnecessary patient transfers.

EP01.56

Postpartum remote blood pressure monitoring and risk of hypertensive related readmission: systematic review and meta-analysis of RCTs

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Objectives: To assess the efficacy of remote blood pressure monitoring and telehealth strategies at preventing readmission due to complications of hypertensive disorders of pregnancy.

Methods: The search was conducted using MEDLINE, EMBASE, Web of Sciences, Scopus, ClinicalTrial.gov, OVID up to March 2024. Selection criteria included RCTs of postpartum individuals randomised to remote blood pressure monitoring or telehealth strategies vs. routine care.

The primary outcome was postpartum readmission due to hypertensive complications, defined as hospital admission after discharge in the postpartum period. The summary measures were reported as relative risk (RR) or as mean difference (MD) with 95% confidence intervals (CI) using the random effects model of DerSimonian and Laird. I-squared (Higgins I^2) greater than 0% was used to identify heterogeneity.

Results: Four RCTs including 714 individuals randomised to either telematic reporting of blood pressure measurements (49.8%) or standard postpartum care with in office blood pressure measurements at the time of postnatal visits (50.1%) There were no significant differences in the rate of hospital readmission due to hypertensive related causes (5.3% vs 11.8% RR 0.56 95% CI 0.18-1.70 p = 0.30). However, emergency department visit rate differed significantly among the two groups (9.0% vs 4.4% RR 2.04 95% CI 1.01, 4.09 p = 0.05). With regards to postpartum follow up: blood pressure assessment at 10 days postpartum was similar between both groups (90.4% vs 70.1% RR 1.34 95% CI 0.72-2.48 p = 0.35), and the 4-6 weeks postpartum visit attendance rate was also similar (82.6% vs 75.9% RR 1.06 95% CI 0.98, 1.14 p = 0.17). No included RCT provided data on maternal secondary outcome like pulmonary edema, stroke, maternal death and ICU admission.

Conclusions: Remote blood pressure monitoring is not effective compared to standard care to prevent hypertensive related readmission and increases emergency department visits.

EP01.57

Enhancing ultrasound image quality for fetal kidney assessment: a prospective study on influential factors

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Objectives: Ultrasound has been the primary imaging method in obstetrics for decades. However, ultrasound has some major limitations due to various factors influencing image quality including maternal body composition and fetal position. These limitations

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become noticeable especially in low impedance structures such as the fetal kidneys. Currently, studies investigating the specific impact of different factors on image quality are lacking. Therefore, this study aims to investigate potential contributing factors in prenatal ultrasound.

Methods: This was a prospective study analysing ultrasound images of fetal kidneys in axial and coronal plane. Ultrasound was performed at 20+0 to 24+6 gestational weeks. All images were audited by a fetal medicine expert and graded based on predefined quality criteria including resolution, kidney visualisation, kidney position and anatomical information. Achieved scores were correlated to gestational age, maternal BMI, scanning duration, fatty-layer-thickness and probe-to-organ-distance.

Results: 44 pregnant women were included and had detailed fetal kidney assessment. Included patients had a mean fatty-layer-thickness of 19.23mm and a mean probe-to-organ-distance of 36.45mm. Both measurements, fatty-layer-thickness and probe-to-organ-distance showed negative correlation with the image quality score. However, only fatty-layer-thickness reached significance ($p = 0.032$). Interestingly, maternal BMI did not significantly correlate with image quality ($p = 0.462$). Scanning duration and gestational age did not show significant correlation with image quality scores as well ($p = 0.834$; $p = 0.320$).

Conclusions: Fatty-layer-thickness of patients significantly influences ultrasound image quality. However, BMI has limited impact on image quality indicating the importance of individual bodyfat distribution. We, therefore, conclude that individual body composition plays an important role in ultrasound imaging and should be considered in future ultrasound device development.

EP01.58
Which maternal and pregnancy characteristics affect obstetric ultrasound quality?

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Objectives: This study aimed to evaluate the maternal and pregnancy characteristics that may impact the quality of obstetric ultrasound assessment at 18-weeks.

Methods: This retrospective cross-sectional study was conducted at a single centre and included 187 consecutive 18-week scans, 205 fetuses, and 565 ultrasound images. Scans were performed from January 2019 to December 2021 by a single operator using a General Electric Medical Systems ultrasound machine (Zipf, Austria) and an RM6C 2–7-MHz curved array transducer with the same ultrasound settings. Two contrast-to-noise ratios (CNR) per image (six per fetus) were determined using two regions of interest for small (umbilical vein, aorta, and spine) and large anatomical structures (abdominal skin-amniotic fluid, right atria-lung, and sacrum skin-amniotic fluid interface). Based on the two sonographers mean, the CNR was classified as poor (CNR < .75), fair (CNR: .75÷1.5), good (CNR: 1.5÷2.25) and excellent (CNR >2.25). Scans were deemed unsatisfactory if they had at least one poor CNR, and considered good if they had more than three CNRs rated as good or excellent, and acceptable otherwise.

Results: Half of the unsatisfactory scans were in obese patients ($P = .001$), and 9 of 10 patients with obesity class II and III had an unsatisfactory exam ($P = .001$).

Conclusions: Maternal obesity was the main factor affecting fetal ultrasound quality.

EP01.59
AI-driven follicle measurement: evaluation of SonoAVCTM follicle auto caliper

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Objectives: Assessing the number and size of follicles is an essential step during fertility treatments. Measuring follicular size during stimulation is of particular importance as it provides an indication of oocyte maturity. However, such measurements are time-consuming and prone to intra- and interobserver variability, therefore warranting the development of automated techniques. SonoAVC™ follicle Auto Caliper (GE HealthCare, Zipf, Austria) is a novel semi-automated tool that places two-dimensional (2D) calipers on follicles based on user interaction, namely tap or click. This study is aimed to assess its performance on retrospective data.

Methods: The semi-automatic caliper placement was developed based on the segmentation outputs of a deep neural network. The tool places 2 orthogonal calipers onto user-selected follicles. Ground truth (GT) annotations for training and validation were contoured by junior medical professionals and reviewed by a senior obstetrics and gynecology practitioner. The offline evaluation of the SonoAVC™ follicle Auto Caliper tool was performed in an inhouse developed tool on 14 volumes. Manual 2D calipers were placed by a senior and junior medical staff. Follicle count measurements were performed during postprocessing.

Results: Bland-Altman plot analysis revealed smaller limits of agreement between the calipers placed on the automatic predictions and GT annotations on operator selected slice (senior: 0.92 and −1.22;

EP01.58: Table 1.

Quality	*Unsatisfactory (n = 73)*	*Acceptable (n = 42)*	*Good (n = 72)*	*P*
Maternal characteristics				
Height (cm)	162 ± 7	162 ± 7	163 ± 7	.91
Nulliparous	43 (60%)	27 (64%)	47 (67%)	.66
BMI (kg/m2)	27.6 (22 ÷ 35)	25.9 (22 ÷ 30)	23 (20 ÷ 26)	<.001*
Overweight	14 (19%)	13 (31%)	18 (25%)	.38
Obesity	33 (45%)	11 (26%)	7 (9%)	<.001*
Caesarean scar	16 (22%)	7 (17%)	10 (14%)	.46
History of Bariatric surgery	3 (4%)	1 (2%)	2 (3%)	>.99
Pregnancy characteristics				
Multiple pregnancy	7 (10%)	6 (14%)	5 (7%)	.46
Anterior placenta	42 (58%)	19 (45%)	35 (49%)	.40
Fetal anomaly	9 (12%)	5 (12%)	4 (6%)	.35

* P < .05. BMI, body mass index

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