357 Skewed to the left: under-measurement of NT's and implications for screening efficiency

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OBJECTIVE: For the NT quality review to be accurate, it is important to ensure that the NT data provided are representative of a general screening population. Therefore we analyzed the Maximum NT by center to determine if there were more than expected number of centers with maximum NT less than 2.5 mm (4% of NT values should be >2.5 mm).
STUDY DESIGN: We analyzed data from 327 centers in which at least 100 NT exams were performed from July 2008 to June 2009.
RESULTS: Based on a binomial distribution, the chance that a center would have no NT values above 2.5 mm, is 1.7% for N of 100 and 0.2% for N of 150. Additionally, the median MoM should shift by approximately 2.5% if all NT values over 2.5mm are excluded from the population. Our data show that 7.3% of centers had maximum NT of less than 2.5 mm and more than 1 out of 5 centers have never reported an NT of > 3mm. The maximum NT at a center correlates positively with its median MOM. Centers with no NT values above 2.5mm also have nearly 50% of their sonographers with excessive low NT (>10% of cases below <5th %tile).
CONCLUSION: Too many centers have 1. maximum NT less than 2.5 mm, 2. low median NT, and 3. excessive low NT indicating that data from these centers are not representative of the expected distribution of NT. Some centers may not be obtaining bloods with high NT's or referring NTs to tertiary centers. However, our data suggest a systematic under-measurement of NT. Center specific medians have been proposed to "normalize" skewed distributions, but such would only mask the identification of poor performance. Without the opportunity to recognize a problem, it can't be addressed.

Max NT	Cntrs	Median N	Median MoM	Excess Low NT
<=2	2	142	0.67	100%
2.1-2.5	22	140	0.87	46%
2.6-3.0	50	186	0.94	14%
3.1-3.5	51	271	0.97	12%
>=3.6	202	432	0.95	19%

358 First-trimester ultrasound assessment of gestational age: is earlier better?

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OBJECTIVE: Ultrasound (US) dating in the first-trimester has been established to be more accurate than US dating later in pregnancy. However, it is not clear that US dating earlier in first-trimester is more accurate than later in first-trimester. The purpose of this study was to evaluate the accuracy of US assessment of gestational age (GA) in early first-trimester versus late first-trimester in a precisely dated in vitro fertilization (IVF) population.
STUDY DESIGN: All pregnant women with singleton gestations who underwent IVF and presented for an US examination at our medical center between 2005-2008 were evaluated. Patients who underwent US at <11 weeks as well as at 11-14 weeks were included. True GA was determined by the day of ovum retrieval and fertilization minus 14 days. Differences between US estimated GA and true GA were calculated for exams performed at 6-10 weeks gestation and at 11-14 weeks. The accuracy of US estimates at <11 weeks and 11-14 weeks were compared. Paired student's t-test was used in statistical analysis with p<.05 considered statistically significant.
RESULTS: 272 pregnant women who underwent IVF at our institution had US exams between 11-14 weeks gestation. Of these, 36 women also had exams in our US unit at <11 weeks gestation. US exams performed at < 11 weeks underestimated GA by a mean (± SEM) of 1.17 ± .28 days (p<.001). US exams at 11-14 weeks overestimated GA by a mean (± SEM) +1.59 ± .14 days (p<.001). In 36 patients undergoing measurements at both intervals, the mean (± SEM) absolute value of the discrepancy was 0.31±0.33 days less at 11-14 weeks, though this was not statistically significant (p=.36).
CONCLUSION: US assessment of GA is very accurate throughout the first-trimester. When using first-trimester US to assess the accuracy of last menstrual period (LMP), it is important to consider the timing of the US and the direction of the US dating discrepancy. US estimates at <11 weeks were significantly more likely to underestimate GA and US estimates at 11-14 weeks were systematically more likely to overestimate GA.

359 Monochorionic diamniotic twin pregnancy: surveillance frequency for detection of twin-twin transfusion syndrome

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OBJECTIVE: Twin-twin transfusion syndrome (TTTS) is a serious complication of monochorionic diamniotic (MCDA) gestations. Current recommendations for ultrasound (US) surveillance in MCDA pregnancies for detection of TTTS vary. Our objective was to determine an appropriate interval to identify TTTS in MCDA twin pregnancies.
STUDY DESIGN: Retrospective cohort analysis of all non-anomalous MCDA twins over a 9-year period. Rates and gestational age (GA) of onset of TTTS were calculated. Time to the diagnosis of TTTS was evaluated by Kaplan-Meier survival curve (Figure 1).
RESULTS: Of the 542 twin deliveries, 145 (27%) were MCDA. The rate of TTTS was 17.93% (N=26). The mean GA of diagnosis of TTTS was 21 ± 3.4 weeks (range 15 to 29 weeks). Both discordant MVP (>65% difference) and discordant EFW (> 25% difference) at initial US demonstrated significantly shorter interval to diagnosis of TTTS (log rank test p<0.0001).
CONCLUSION: Evaluation for TTTS should begin in the second trimester. Weekly surveillance for those pregnancies with EFW discordance and MVP discordance is recommended. Evaluation every 2 weeks is warranted to 28 weeks. After that, development of TTTS is unlikely, and serial examinations every 3-4 weeks is appropriate. Confirmation with larger sample sizes and incorporation of first trimester CRL measurements can further clarify ideal fetal testing schedule.
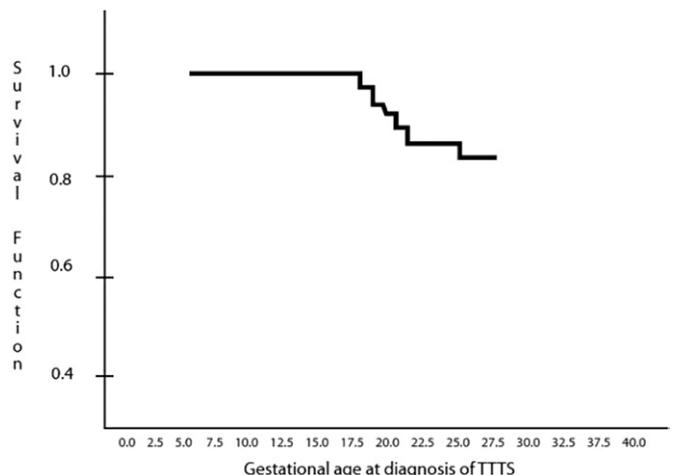

Figure 1: Kaplan-Meier survival curve to dx of TTTS