WELLINGTON

OBSTETRICS

ADVANCED MATERNAL AGE

P. 04 830 2960 F. 04 830 2961 A. 38 RIDDIFORD ST, NEWTOWN, WELLINGTON

E. RECEPTION@WELLINGTONOBSTETRICS.CO.NZ W. WELLINGTONOBSTETRICS.CO.NZ

ADVANCED MATERNAL AGE

Advanced maternal age (AMA) is generally referred to as pregnancy at maternal age over 40 years old. Pregnancy is now common and successful in this age group. There are many society factors that have facilitated this trend including, late marriage, higher education, effective birth control and advances in assisted reproductive technology. With the progress of assisted reproductive technology it is now possible to extend a woman's reproductive life beyond the age of natural menopause.

Women who are contemplating pregnancy, or are pregnant at this stage of life should seek medical care with obstetric providers that are familiar with the risks of pregnancy with AMA. However, it is important to remind ourselves that although risks exist and are somewhat elevated, the absolute risks are small. With individualized care, it is more common to have good outcomes.

HOW DOES AGE AFFECT FERTILITY?

Fertility in women starts to decrease at age 32 years and becomes more rapid after age 37 years. Women become less fertile as they age because the numbers of eggs in their ovaries decrease, as they grow older. Eggs are not as easily fertilized in older women as they are in younger women. Problems that can affect fertility, such as endometriosis and uterine fibroids, become more common with increasing age as well.

PRECONCEPTUAL COUNSELLING

Women of AMA will benefit from preconception counselling. With advancing age there is more likely to be underlying medical conditions, such as insulin resistance, diabetes mellitus, and cardiovascular disease or hypertension.

A healthy physical state with optimal control of any underlying medical disorders can significantly improve pregnancy outcome. Consultation should involve a review of medical history, family and genetic history. Exercise, diet and stressors should be reviewed and modified. Pre-conceptual folic acid supplementation should be initiated. Mammogram screening and updated immunizations arranged. Avoidance of cigarettes, alcohol, and recreational drugs should be strongly encouraged.

The risks relating to pregnancy in association with AMA should be frankly discussed. Increasing maternal age is closely associated with increasing risk of most of these adverse outcomes. In conjunction with the discussion of the risks it is also important to come up with a preconceptual and antenatal plan so there is adequate counselling and outcomes are optimized.

Risks include: aneuploidy and congenital anomalies, as well as potential pregnancy complications such as miscarriage, gestational diabetes, pregnancy-induced hypertension, multiple gestations, placenta previa, placental abruption, cesarean delivery, preterm birth, intrauterine growth restriction stillbirth and rarely, maternal death. See absolute numbers at the end. Although the risks are elevated, they are not all that high.

It is strongly recommended that recipients of assisted reproduction at AMA undergo additional testing over and above that of routine fertility investigation. Full cardiovascular evaluation is recommended, and this evaluation is undertaken before any treatment is commenced. This includes assessment of non-modifiable risk – family history of heart disease – as well as modifiable risks: smoking, either active or passive; increased cholesterol and abnormal lipid profile; hypertension; pre-existing diabetes; physical inactivity; overweight or obesity; depression, social isolation, and lack of quality support.

ANEUPLOIDY

The relationship between advanced maternal age and aneuploidy is well known. The incidence of trisomy increases, affecting up to 35% of women in their 40s. Balanced translocations are not increased in women of advanced age. All autosomal monosomies and most trisomies are not viable, accounting for many early losses.

The few viable trisomies (13, 18, and 21 sex chromo- some trisomies) are the result of non- disjunction during meiosis in the egg. These are most likely due to changes in the meiotic process that begin during fetal development, arrest at prophase I before birth, and do not resume until prior to ovulation in adulthood. This prolonged time interval results in an increased incidence of aneuploidy. This may explain the decreased fertility seen with advancing maternal age.

Prenatal screening, ideally with combined first trimester screening, should be discussed and offered to all patients. Chorionic villus sampling or amniocentesis as a diagnostic test should be offered. Note: it is important to remember that in those who have conceived with a donor egg, the risk of aneuploidy relates to age of the egg donor.

DIABETES

AMA may be associated with pre-pregnancy diabetes and gestational diabetes. This may be related to decreasing pancreatic beta cell function, increasing body mass index, and decreasing insulin sensitivity. Patients in this age group should undergo early diabetes screening.

PLACENTA PREVIA, VASA PREVIA, ABRUPTION

Placenta previa and abruption are more frequent due to higher parity, age-related endothelial damage, and prior uterine surgery. Placental abruption may be related to the aging uterine vessels, chronic hypertensive disorders, prior cesarean delivery, and multiple gestations.

FETAL GROWTH RESTRICTION, HYPERTENSION AND STILLBIRTH

Placental problems have been associated with AMA and may explain a common mechanism for preterm birth in pregnancies complicated by pre-eclampsia, fetal growth restriction, placental abruption, and possibly intrauterine fetal demise. These associations can complicate both preterm and term births.

AMA is an independent risk factor for fetal growth restriction. Thus, fetal growth should be monitored. The risk of intrauterine fetal demise increases with advancing age, especially in women

aged 40 years and older. The pregnancy should be monitored weekly from 37 weeks with delivery to occur by term. Consideration should be given to low-dose aspirin in all women of AMA to aid placental implantation and function. This needs to be commenced prior to 16 weeks gestation.

DELIVERY

AMA is associated with increased rates of preterm delivery but not due to spontaneous labour. Medically indicated preterm births secondary to intrauterine growth restriction, pre-eclampsia, and placental abruption are increased.

Cesarean delivery rates are increased in both nulliparous and multiparous patients with AMA. This may be due to many factors, including non-reassuring fetal status, multiple gestations, malpresentation, placenta previa, arrest of descent, arrest of dilatation, prior uterine surgeries, induction of labour, repeat cesarean delivery, and maternal request.

CONCLUSION

Due to the risks outlined above management of these patients should be individualized. Consultation should occur with an Obstetrician familiar with the risks of AMA and pregnancy, this should include preconceptual and genetic counselling.

If in vitro fertilization is a consideration or a necessity, single embryo transfer should be offered. Due to the elevated risks of diabetes, early screening should be offered in the first or mid-trimester and, if normal, repeated in the second trimester. All patients should be offered screening and invasive testing for aneuploidy. When possible, a first trimester scan with nuchal translucency evaluation, and a detailed anatomy scan at approximately 20 weeks with uterine artery Doppler screening should be performed. If a low-lying placenta is noted and has resolved, a transvaginal cervical evaluation for vasa previa should be performed. Fetal growth should be assessed between 28 and 34 weeks. Because of increased risks of fetal demise, women aged 40 years and older should receive antenatal fetal testing at 37 weeks with delivery scheduled by 40 weeks gestation. These recommendations should optimise the likelihood of a favorable pregnancy outcome.

See the following page for Absolute risks of pregnancy with Advanced Maternal Age

ABSOLUTE RISKS OF PREGNANCY WITH AMA

	MATERNAL AGE			
	20 – 29 Years	30 – 39 Years	40 – 44 Years	Over 45 Years
Gestational Diabetes	1.4%	4.2%	10.2%	17%
Gestational Hypertension	2.0%	2.3%	3.2%	9.0%
Pre-Eclampsia	0.7%	1.5%	2.4%	10.7%
Placental Abruption	0.3%	0.7%	1.0%	1.1%
Placenta Previa	0.2%	0.6%	1.4%	5.6%
Delivery <37 Weeks	7.7%	9.1%	12.8%	21.5%
Caesarian Delivery	15.7%	23.3%	42.9%	78.5%
Birthweight <10th Centile	10.7%	8.5%	9.8%	11.3%
Admission to NICU	6.3%	7.4%	8.6%	10.7%

Yogev Y, Melamed N, Tenenbaum-Gavish K, et al. Pregnancy outcome at extremely advanced maternal age. Am J Obstet Gynecol 2010;203:558.e1-7.

References

Canterino JC. Advanced Maternal Age and Risks for Adverse Outcomes. The Female Patient 2012; 37: 25-33

ECARSM. Oocyte or embryo donation to women of advanced age: a committee opinion. Fertility and Sterility: 2013; 100 (2): 337-340

Yogev Y, Melamed N, Tenenbaum-Gavish K, et al. Pregnancy outcome at extremely advanced maternal age. Am J Obstet Gynecol 2010;203:558.e1-7.