healthy lifestyle and low glycaemic index dietary advice and self-monitoring of blood glucose using glucometers. Fasting blood samples were collected following GDM diagnosis and repeated after 4-6 weeks for analysis of glucose, insulin and C-peptide. Homeostasis model assessment index (HOMA-IR) was calculated to assess insulin resistance. Changes in each parameter were calculated by paired samples t-test. Where significant changes were detected, associations with neonatal outcomes were assessed by correlation and regression analysis.

RESULTS: A significant reduction in maternal fasting glucose ($p<0.001$) and HOMA-IR ($p=0.045$) was observed, but there were no changes in serum insulin or c-peptide. Reduction in fasting glucose did not correlate with any neonatal outcomes. Reduction in HOMA-IR was inversely correlated with neonatal birthweight ($r=-0.27$, $p=0.013$) and macrosomia ($r=-0.28$, $p=0.012$). These associations remained in regression analysis, adjusting for infant sex and gestation at delivery. No associations were detected with birthweight centile, LGA, SGA, admission to NICU or cord glucose and C-peptide.

CONCLUSION: Women with GDM managed on diet experienced reductions in fasting glucose and HOMA-IR. This improvement in insulin sensitivity may help moderate birthweight and reduce the risk of macrosomia.

Association between reduction in HOMA-IR among women treated for GDM with neonatal birthweight and risk of macrosomia (N=93)

Independent variable	Dependent variable	Mean (SD) or N(%)	Coefficient (95% confidence interval)	Odds ratio	P-value
Reduction in HOMA-IR	Birthweight (kg)[a]	3.67 (0.54)	-0.09 (-0.16 to -0.01)	-	0.028
	Macrosomia (birthweight>4kg)[b]	23 (24.7)	-0.43 (0.44 to 0.96)	0.65	0.029

HOMA-IR, homeostasis model assessment of insulin resistance. P-values calculated by multiple linear regression (a) and binary logistic regression (b), adjusting for infant sex and gestational age at delivery.

491 The effect of a barrier self-retaining retractor in obese patients undergoing cesarean section

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OBJECTIVE: Surgical site infections are an important cause of morbidity following Cesarean section, particularly in obese patients. The purpose of this study is to determine whether the Alexis O C-section retractor (AOCR), a barrier self-retaining retractor, reduces wound infection and wound disruption rates in obese patients undergoing Cesarean section.

STUDY DESIGN: This is a randomized controlled trial of obese women (BMI >30 kg/m^2) undergoing non-emergent cesarean section. Patients were randomized to the treatment group (using the AOCR) or to the control group (using conventional hand-held retractors). Primary outcomes of wound disruption or wound infection were assessed at three time points: during the postoperative hospital stay, 1-2 weeks postpartum, and 30 days after the C-section. Secondary outcomes included operative time, estimated blood loss, change in hemoglobin, anti-emetic use, length of postoperative hospital stay, hospital readmissions, and other postoperative complications.

RESULTS: A total of 250 patients were enrolled in the study. 116 patients were randomized to the AOCR group and 134 to the control group. Baseline characteristics and indications for Cesarean section were similar between the two groups. Mean BMI was 39.8 kg/m^2. There were no significant differences between the AOCR group and the control group in the primary outcome of wound infection or disruption rates during any of the time periods assessed (see table). There were no differences in wound disruptions or infections between the AOCR and control groups when adjusting to obesity class or depth of subcuticular fat. There was no difference in secondary outcomes, although patients in the AOCR group had lower rates of exteriorization of the uterus (54.3% vs 87.3%, $p<0.001$).

CONCLUSION: Use of the Alexis retractor in C-sections did not decrease wound disruption or infection rates in a high risk obese population. Its use as a retractor should be left to the discretion of the surgeon and clinical circumstances.

Comparison of wound disruptions and infections in the AOCR and control groups

	AOCR (n=116)	Control (n=134)	p-value
Any wound disruption/infection through postoperative hospital stay	5 (4.3%)	8 (6.0%)	0.76
Wound disruption	0 (0.0%)	0 (0.0%)	--
Wound infection	5 (4.3%)	8 (6.0%)	0.76
Any wound disruption/infection through 1-2 weeks postoperative period	19 (16.5%)	22 (17.1%)	1.00
Wound disruption	13 (11.3%)	15 (11.6%)	1.00
Wound infection	14 (12.2%)	16 (12.6%)	1.00
Any wound disruption/infection through 30 days postoperative period	22 (19.6%)	25 (19.5%)	1.00
Wound disruption	15 (13.4%)	17 (13.3%)	1.00
Wound infection	15 (13.4%)	18 (14.1%)	1.00
Wound disruption or infection according to BMI			
BMI 30.0-34.99 kg/m^2	3 (12.0%)	6 (17.1%)	0.72
BMI 35.0-39.99 kg/m^2	6 (18.8%)	2 (7.1%)	0.26
BMI >40.0 kg/m^2	13 (24.1%)	17 (26.2%)	0.96

Data are given as n (%). AOCR, Alexis O C-section retractor (Applied Medical Resources Corp, USA)

492 A comparison of vaginal pessaries for the prevention of preterm birth in pregnant women with a short cervix

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OBJECTIVE: Recent evidence has supported that cervical pessaries may prevent spontaneous preterm birth. However, few studies have focused on the use of vaginal pessaries. Our objective was to compare Inflatoball and Smith-Hodge vaginal pessaries for the prevention of preterm birth in women who had a pessary placed for the treatment of a short cervix in pregnancy.

STUDY DESIGN: This was an IRB-approved retrospective study comparing pregnant women who had either an Inflatoball or a Smith-Hodge vaginal pessary placed for the treatment of a short cervix (<25 mm) at 16-30 weeks' gestation between November 2009 and December 2013. Pregnancy and perinatal outcomes were compared, including pregnancy complications and a composite of adverse neonatal outcomes.

RESULTS: 65 patients were identified who had a cervical length <25 mm received either an Inflatoball pessary (n=45) or a Smith-Hodge pessary (n=20). Baseline demographic characteristics were similar between the two groups. Average gestational age and cervical length at placement was similar for the Inflatoball and Smith-Hodge pessary (24.6 vs 25.5 weeks, $p=0.51$ and 120 vs 115, $p=0.92$, respecitively). There were no differences in complications, such as PPROM, chorioamnionitis, or vaginal bleeding between the two groups. There were also no differences in gestational age at delivery, risk of preterm birth <37 or <34 weeks gestation, or in perinatal outcomes, including the composite of adverse neonatal outcomes (see table).

CONCLUSION: Vaginal pessaries may be an appealing treatment option for women with a short cervix, particularly when presenting at a later gestational age. On average, women who were treated with

either vaginal pessary with a cervical length of 123 mm at 25.3 weeks' gestation delivered around 34.4 weeks' gestation. There appears to be no difference in complications, the prevention of preterm birth, or adverse perinatal outcomes between the Inflatoball and the Smith-Hodge pessary.

Pregnancy and neonatal outcomes in women who had a vaginal pessary placed for the treatment of a short cervix in pregnancy

	Inflatoball (n=45)	Smith-Hodge (n=20)	p-value
Gestational age at placement (weeks)	25.0 ± 4.14	25.5 ± 5.65	0.29
Cervical length at placement (mm)	123 ± 52	121 ± 15	0.43
Cervical dilation at placement (cm)	0 ± 1.00	0.5 ± 2.0	0.69
Gestational age at delivery (weeks)	34.4 ± 4.24	34.3 ± 4.71	1.0
Preterm Birth <37 weeks	25 (62.5%)	10 (62.5%)	1.0
Preterm Birth <34 weeks	15 (37.5%)	6 (37.5%)	1.0
Chorioamnionitis	0 (0.0%)	0 (0.0%)	--
PPROM	7 (15.6%)	6 (30.0%)	0.14
Vaginal bleeding	9 (20.0%)	2 (10.0%)	0.27
Composite of adverse neonatal outcomes	17 (37.8%)	7 (35.0%)	1.0

Data are given as mean ± SD, median ± interquartile range, or n (%). The composite of adverse neonatal outcomes included perinatal death, neonatal ICU stay >30 days, respiratory distress syndrome requiring intubation, sepsis, neonatal seizures, intraventricular hemorrhage, necrotizing enterocolitis, or 5 minute Apgar score <7.

493 Is increased maternal and fetal morbidity in women over 40 with spontaneous conception associated with age or parity?

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OBJECTIVE: In the United States, 3.0% of pregnancies occur in women > 40 years of age, and increased maternal and fetal morbidity have been reported. Although differences in risk for maternal and fetal outcomes (such as preeclampsia, stillbirth, and neonatal morbidity and mortality) have been shown, there may be significanct confounding by virtue of use of assisted reproductive technologies (ART). Our objective was to compare perinatal outcomes in gravidae over age 40 (>40yo) who conceived spontaneously to women under age 35.

STUDY DESIGN: We applied a nested cohort study design to an existing database of 7900 completed pregnancies from August 2011-June 2014. We assessed and evaluated data on maternal demographics and self-reported use of ART; maternal outcomes including gestational diabetes, hypertensive disorders, postpartum hemorrhage, and mode of delivery; and neonatal outcomes including stillbirth, gestational age at delivery, birthweight, 5 minute Apgar score, NICU admission, infection, and composite neonatal outcome (RDS, NEC, ROP, or death). In order to control for parity, gravidae >40 yo were matched 3:1 for parity with women <35 years.

RESULTS: 340 gravidae >40 yo at the time of delivery were compared to 1014 gravidae < 35 yo. As shown in the Table, even after matching 3:1 for parity gravidae >40 were significantly more likely to experience maternal comorbidities (DM, HTN) and undergo CD. However, there was no associated increased risk of any single or composite neonatal outcome.

CONCLUSION: In this cohort, maternal age >40 yo remained a significant risk factor for gestational diabetes, hypertensive disorders, and CD, despite matching for parity. Thus, age rather than parity appears to be the greater arbiter of adverse maternal outcomes, but not neonatal outcomes.

Table	Age <35 n=1014	Age >40 n=340	p
Maternal Demographics			
Age (Average (SD))	32.5 (2.0)	41.9 (1.5)	<0.001
Parity (Average (SD))	2.9 (1.7)	3.0 (1.9)	0.644
Race/ Ethnicity (n (%))			
Caucasian	34 (3.4)	9 (2.6)	
Black	71 (7.0)	28 (8.2)	
Hispanic	874 (86.2)	283 (83.2)	
Other	27 (2.7)	19 (5.6)	
Unknown/ Not reported	8 (0.8)	1 (0.3)	0.074
Prepregnancy Body Mass Index (Average (SD))	29.7 (6.2)	30.3 (6.0)	0.192
Gestational Weight Gain			
Insufficient (n (%))	322 (34.7)	82 (35.2)	0.879
Excess (n (%))	362 (39.0)	78 (33.5)	0.122
Maternal Comorbidities (n (%))			
Hyperthyroidism	6 (0.6)	5 (1.5)	0.118
Hypothyroidism	22 (2.2)	12 (3.5)	0.166
Type I DM	4 (0.4)	6 (1.8)	0.011
Type II DM	53 (5.2)	39 (11.5)	<0.001
Seizure Disorder	6 (0.6)	1 (0.3)	0.508
Myocardial Infarction	0 (0)	1 (0.3)	0.084
Cerebral Vascular Accident	1 (0.1)	0 (0)	0.562
Asthma	32 (3.2)	9 (2.6)	0.636
Hypertension	68 (6.7)	52 (15.3)	<0.001
Smoking	17 (1.7)	3 (0.9)	0.436
Alcohol Use	2 (0.2)	2 (0.6)	0.263
Maternal Outcomes (n (%)) Unless otherwise noted			
Gestational diabetes	218 (21.5)	106 (31.2)	<0.001
Hypertensive disorders	136 (13.4)	76 (22.4)	<0.001
Preeclampsia	45 (4.4)	19 (5.6)	0.387
Eclampsia	0 (0)	0 (0)	-
Postpartum hemorrhage	19 (1.9)	11 (3.2)	0.106
Peripartum hysterectomy	7 (0.9)	3 (1.3)	0.759
Cesarean Delivery	245 (24.2)	115 (33.8)	<0.001
Cesarean Indication			
Non-labor related (*e.g.* repeat, malpresentation, previa)	177 (72.2)	77 (67.0)	
Labor related (*e.g.* fetal distress, labor dystocia)	68 (27.8)	38 (33)	0.183
Chorioamnionitis	37 (3.7)	11 (3.2)	0.17
Neonatal Outcomes (n (%)) Unless otherwise noted			
Gestational age at delivery (Average (SD))	38.7 (1.9)	38.2 (2.2)	<0.001
Birthweight (Average (SD))	3298 (561)	3243 (640)	0.131
5 minute Apgar score <7	26 (2.6)	7 (2.1)	0.601
Level 2 or 3 nursery	250 (25.3)	100 (30.1)	0.084
Small for gestational age <10th percentile	121 (11.9)	33 (9.7)	0.263
Large for gestational age >90th percentile	130 (12.8)	53 (15.6)	0.116
Composite neonatal outcome	28 (2.8)	16 (4.7)	0.08
Bronchopulmonary dysplasia	2 (0.2)	0 (0)	0.366
Respiratory distress syndrome	28 (2.8)	16 (4.8)	0.211
Necrotizing enterocolitis	0 (0)	0 (0)	-
Stillborn	2 (0.2)	0 (0.0)	0.56
Neonatal death	1 (0.1)	0 (0)	0.749

494 Determining fetal adiposity in utero based on sonographic measurements of fetal buoyancy (rate of fetal rise, RFR)

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OBJECTIVE: Accurate identification of pathologically large for gestational age (LGA) or small for gestational age (SGA) fetuses is clinically challenging; sonographic measurements tend to overestimate and underestimate the weights of suspected LGA and SGA fetuses, respectively. We sought to validate a new method for evaluating fetal weight in three groups of gravidae: those with an uncomplicated pregnancy, and those with suspected LGA or SGA.

STUDY DESIGN: 34 gravidae with gestational age over 34 weeks were prosepectively enrolled. Routine biometry was performed and two sets of subcutaneous skin thickness were sonographically measured, alongside AFI and placental location and thickness. The fetus was then manually depressed downward and its ascent (rate of fetal rise (RFR)) was recorded in a clip. The rate of fetal rise was then calculated as a measure of frames, distance, and time. Postnatal anthropometry was completed, including PeaPod DEXA scanning in