BEHAVIOURAL DEFICITS INDUCED BY CHRONIC PERINATAL STRESS IS AMELIORATED BY XBD173 ADMINISTRATION IN MALE GUINEA PIG OFFSPRING

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Background: Neurosteroids have protective effects in the developing brain and neurosteroid disruption through chronic stress during late pregnancy is known to lead to behavioural disorders in the offspring in later life. We propose that stimulation of neurosteroid synthesis through administration of ligands of the mitochondrial translocator protein (XBD173) will reduce these adverse outcomes.

Methods: Pregnant guinea pigs were exposed to stress (strobe light exposure for 2hrs/day on gestational age (GA) 50, 55, 60 and 65; term GA71), as were the offspring (maternal separation for 2hrs/day from postnatal day (PND) 2-8), resulting in neonates exposed to a ‘double-hit’ of prenatal and postnatal stress (dual stress). Pups received XBD173 (0.3mg/kg daily) on PND2-8 and underwent open field and elevated plus maze testing on PND 9 and 28.

Results: Following the dual stresses, male offspring displayed a hyperactive phenotype at PND9 which persisted to PND28. At PND9, male offspring displayed an increase in speed travelled (p=0.04) and distance travelled within the inner zone (p=0.02) of the open field arena. These males also displayed an increase in entries into the closed arm of the elevated plus maze at PND 9 (p=0.01) and an increase in time spent in the open arm at PND28 (p=0.001). Following XBD173 administration to the male dual stress pups, these behavioural parameters displayed a reduction to control levels.

Conclusions: The finding that XBD173 restored behavioural phenotypes to control levels indicates that supplementation of neurosteroid pathways may be a suitable approach for improving outcomes following exposure to perinatal stress.

MOBILE PREGNANCY APPS, DECREASED FETAL MOVEMENT AND SELF-ASSESSMENT OF RISK

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Background: Millions of women download mobile applications (“apps”) during pregnancy to build knowledge, track data and seek reassurance. Content of mobile applications may influence self-assessment of risk and health care-seeking behaviour of pregnant women concerned about decreased fetal movement (DFM).

Methods: A systematic review was conducted to assess how mobile “pregnancy” apps (1) address DFM, (2) encourage self-assessment of risk, and (3) link DFM to potential adverse perinatal health outcomes. Based on inclusion criteria with domains of relevance, reach, accessibility and quality, 24 mobile applications were selected for review. Data was extracted by two reviewers and analysed within a qualitative and quantitative framework.

Results: All apps mentioned DFM and encouraged fetal movement awareness. Few apps link DFM explicitly to stillbirth (20%), preterm birth (8%), low birthweight (8%) or emergency delivery (8%). Two-thirds of the sample offer guidance on “kick counting” for self-assessment, and one-third of the apps incorporate a “kick counter” feature. Few of the apps reference clinical practice guidelines or cite expert authorship.

Conclusions: This review is the first to evaluate content about fetal movement presented by mobile apps providing information during pregnancy. Perinatal mortality and morbidity may be influenced by accuracy of this information, features that encourage awareness, and language encouraging women to promptly address fetal movement concerns.

VISUAL OUTCOMES OF UNTREATED RETINOPATHY OF PREMATURITY IN YOUNG ADULTS BORN IN 1986

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Background: In 1986 all 413 New Zealand very low birth-weight (<1500g; VLBW) infants were included in a prospective study of retinopathy of prematurity (ROP); 338 (82%) surviving to discharge and 67 (21%) developing ROP. Treatment was unavailable and 6 children became blind. Our objective was to compare visual outcomes at 27-29 years in VLBW adults and controls born at term.

Methods: VLBW adults (250) and controls (100) came to Christchurch for assessment. Visual assessment included glasses prescription using a focimeter; distance visual acuity (VA: ETDRS chart, with glasses if worn); Pelli-Robson contrast sensitivity charts; autorefraction; retinal photographs; and questionnaire to assess vision related to everyday activities. Between group comparisons were assessed by Chi-square or t-test as appropriate.

Results: 229 VLBW young adults (45 with a history of ROP) and 100 controls completed assessments. VLBW ROP adults had reduced VA compared with noROP and controls (mean logMAR scores 0.003, -0.021, -0.078; p=0.001). There were no differences in myopia (>2D) between the groups but high myopia (>5D) was confined to those with ROP. Stage 2 or more ROP had an impact on outcome. VLBW ROP adults more often had difficulties with everyday activities because of vision and less often held a driving licence than other groups. Two VLBW ROP adults, both with stage 2 ROP, suffered a retinal detached aged 16 yrs.

Conclusions: Compared with controls, VLBW young adults with a history of ROP have poorer VA, were less likely to drive and more likely to experience vision problems affecting daily living.