IS-71 Placenta as a Potential Source of Mesenchymal Stem Cells for Cellular and Gene Therapy

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[Objective] In this study, we examined whether mesenchymal stem cells (PD-MSCs) are suitable for a cell source for gene therapy. We showed that PD-MSCs are successfully induced into myogenic differentiation, and utilized for treatment of congenital muscle disorders in animal models. [Methods] Ethical approval for tissue collection was granted by Institutional Review Board. Amniotic mesoderm derived cells (AMCs) were isolated from the placenta. AMCs were transduced with the EGFP vector, and transduction efficiency was measured by flowcytometry. AMCs were then transduced with the MYOD1 vector, and mRNA levels for muscle-specific genes were determined by Quantitative PCR. [Results] Approximately 70% of AMCs were efficiently transduced by the lentiviral vectors. The mRNA levels of MYOD1-transduced PD-MSCs showed 500 times more expression of myogenic regulatory factors such as MYF5, MYOG than untreated PD-MSCs. Expression of muscle-specific genes, MYH2 and DMD, also showed several times higher expression. [Conclusion] A large number of PD-MSCs can be obtained through non-invasive procedures. Although the PD-MSCs are primary cells, they can be modified quite efficiently by exogenous genes using lentiviral vectors and stably maintained in vitro. We conclude that the placenta is a hopeful cell source for gene therapy.

IS-72 The impact of first trimester screening and the detection of cystic hygroma: A retrospective study, 1999–2009

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Objective: The purpose of this study is to evaluate the impact of first trimester screening on the detection and management of cystic hygroma. Methods: Retrospective chart review of 51 studies with a diagnosis of cystic hygroma performed in the Fetal Diagnostic Center of Abington Memorial Hospital between 1999–2008. Data was analyzed using SAS, version 8.1, Chi-square and Fisher’s exact tests were used where applicable. Results: A total of 51 cases of fetal cystic hygroma were detected between 1999–2008. Prior to the initiation of nuchal translucency (NT) screening, 23 cases were diagnosed from 1999–2005, whereas after NT screening began in 2006, 28 cases were detected in the next three years. In addition, the average gestational age at time of diagnosis for studies performed between 2006 and 2009 was significantly earlier than those diagnosed prior to 2006 (0.001). There has also been a concomitant and statistically different shift in genetic procedures performed as a result of cystic hygroma diagnosis (0.005). Prior to 2006, of those patients opting for a genetic procedure, 62% underwent amniocentesis and 38% underwent CVS. Since 2006, 18% underwent amniocentesis and 82% opted for CVS. The overall incidence of abnormal fetal karyotype in fetuses with cystic hygroma was 62% which is similar to previously reported studies. Conclusion: The implementation of first trimester nuchal translucency screening has increased the number of cases of cystic hygroma diagnosed and decreased the gestational age at diagnosis. The decrease in gestational age at time of diagnosis has led to a corresponding shift in management from karyotype evaluation with amniocentesis to CVS. The authors speculate that these findings do not represent an increase incidence of cystic hygroma but rather an increase in detection of the abnormality secondary to the timing of nuchal translucency screening.

IS-73 Conservative Management of Ectopic Pregnancy: A Provincial Hospital Case Series of Medically Managed Ectopic Pregnancies

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The objective of this study is to present and discuss cases of ectopic pregnancies seen in our institution from 2007 to 2010 successfully treated using single dose methotrexate. All patients diagnosed with ectopic pregnancy seen in our institution from 2007 to 2010 who met our selection criteria for medical treatment were included in the study. Cases were included only when the diagnosis was made either on serial βhCG or on ultrasonographic features of an unruptured ectopic pregnancy: (1) an empty uterine cavity, (2) adnexal mass < 3 cm with no fetal heart activity and (3) no free fluid in the cul de sac. Our criteria for medical therapy include a hemodynamically stable clinical condition, no evidence of rupture on ultrasound, normal liver and renal function and patients’ compliance to follow-up. Majority of our patients were treated on an outpatient basis using 50 mg single dose intramuscular methotrexate and treatment response measured using serial βhCG monitoring measured on days 4 and 7 and weekly thereafter until they were less than 5 mIU/ml. Success of medical management was defined as the resolution of the βhCG level to less than 5 mIU/ml. Surgical intervention for any reason was viewed as failure of treatment. All of the nine cases of unruptured ectopic pregnancies seen during this period were treated using 50 mg single dose intramuscular methotrexate and were successfully resolved without need for surgical intervention. There was a significant reduction in serum βhCG after the single dose of treatment with minimal side effects. Complete βhCG resolution was achieved (100% success rate) in all medically treated cases with a minimum of 4 days and a maximum of 35 days of serial βhCG monitoring. Conservative management using single dose methotrexate is a safe and effective option to surgical intervention in the treatment of unruptured ectopic pregnancies. However, it is reserved for patients that satisfy the strict criteria for medical treatment. This mode of treatment offers minimal side-effects, has the advantage of avoiding invasive surgery and a cost effective method of treatment.