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Joint Event On

World Congress on

Novel Trends and Advances in Biotechnology, Cell & Stem Cell Research

&

15th Annual Congress on

Pediatrics

November 28-29, 2018 Barcelona, Spain

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Keynote Forum

Day 01

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Gocha Shatirishvili, Arch Med 2018, Volume 10
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Gocha Shatirishvili

Geocord Cord Blood Bank, Georgia

Safety and efficacy of autologous cord blood intrathecal transplantation for children with autism spectrum disorder (preliminary results)

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition with onset early in life. The stereotypical behavior, impairment of social communication and restricted activities are characteristics. Immuno dys-regulation, hypo-perfusion of brain and neuro-inflammation play role in pathogenesis. Lack of communication between the brain regions, responsible for normal activities, is the main pathophysiological characteristics. There is no cure for autism. ABA therapy is not enough efficient and new therapies are needed. Several trials demonstrated that CB transplantation for autism is safe and effective. Cord blood stem cell has positive paracrine effect on affected brain. But not all cord blood units contain recommended cell doses for intravenous treatment. Intrathecal injection, accepted route for neurodegenerative diseases cell therapy, could solve this problem. This is safe route, no neural tissue damage occurs, the circumvention of the blood-brain-barrier finds place. All Injected cells are transported by CSF to the affected parts of brain, while most of intravenously transplanted cells are caught in lungs, spleen and liver, only tiny number of cells migrates through blood-brain barrier. The number of cells, migrated to the brain, is important for successful treatment. Mardaleishvili Medical Center, Tbilisi startet I phase study. Children at age of 4-12 years are injected intrathecally with autologous cord blood three times with 6 months intervals. No minimal cell dose was established. Cell dose $54x10^6$ nucleated cells per injection were efficient. 3 patients were treated yet. Effectiveness was confirmed by VABS-II and ADOS-2. No significant side effects were observed. After two transplantations children conditions were improved steadily and significantly. Behavioral improvement, less aggressiveness, no emotional outbursts and improvement of vocabulary (from zero up to thousand words) were reported. Abilities to speak, read, write, paint appeared in all three patients.

Biography

Gocha Shatirishvili is Medical Director of family Cord Blood Bank Geocord, Tbilisi, Georgia and Chief Scientific Officer of Department for Cell Technologies and Therapy at Cancer Research Center, Tbilisi. He has earned his Doctoral Degree at the Medical University Lubeck (Germany). Since 2000 his research interests focussed on stem cell research and therapy. His 18 years long experience includes cord blood banking, cell therapy with autologous bone marrow stem cells (spinal cord injury, liver cirrhosis, heart failure, autism) and cord blood stem cells (ongoing study on autism), immunotherapy with lymphokine activated NK cells and DC vaccine against cancer. His research field includes hematopoietic stem cell expansion (cord blood), MSC expansion (from Wharton's jelly and bone marrow). He is a member of Georgian National Committee on Transplantation and Committee on Bioethics at State Medical University Tbilisi. He is a member of Cord Blood Association (Government and Global Affairs Committee, Geneva, IL, USA) and Perinatal Stem Cell Society.

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R T Kamble

Baylor College of Medicine, USA

Orthotopic heart transplant facilitated autologous hematopoietic stem cell transplantation for light-chain amyloidosis

Objective: Dominant cardiac involvement by primary systemic amyloidosis (AL) precludes effective AL treatment and is associated with short survival. We evaluated long term outcomes of these patients receiving Orthotopic Heart Transplantation (OHT) and Autologous Hematopoietic Stem Cell Transplantation (ASCT).

Methods: Between January 2009 and July 2018, total of 14 patients who presented with severe cardiac dysfunction as their major manifestation of AL underwent OHT. Eight of these 14 patients received ASCT. All patients had end stage heart failure and developed cardiogenic shock requiring intra-aortic balloon pump support (median 20 days, range 10-165) as a bridge to OHT.

Results: The median age at AL presentation was 54 years (42-63) in 7 females and 7 males. At median follow-up of 55 months (1-104) from OHT, 10 (71 %) patients are alive. Two patients died of post-operative complications at 1 and 7 months post OHT; 2 patient died 36 and 104 months after OHT (23 and 91 months post ASCT) of AL progression. Eight patients received ASCT at median of 13 months (13-34) after OHT. Treatment for disseminated cryptococcus delayed ASCT in one patient (#8). One patient awaits ASCT in June 2018. In the remaining 3 patients ASCT was not feasible due; to low DLCO (n=2) and prior ASCT (n=1). All 8 patients with ASCT were on tacrolimus and prednisone at the time of stem cell mobilization and hematopoietic transplant; two patients were also receiving mycophenolate mofetil and valganciclovir. We collected 4.0, 5.7, 6.1, 6.2 and 9.6 x 10^6 /kg CD-34^+ cells in 2 days after filgrastim administration (5 ug/kg, twice daily) and plerixafor (16 mg/kg based on day- 4 CD-34^+ counts) in 5 subjects. The fifth patient initially failed to mobilize but 4.3x106 /kg CD-34^+ cells were subsequently obtained after stopping mycophenolate mofetil for 4 weeks. The median creatinine clearance at the time of ASCT was 42 (30-53) ml/minute. All 8 patients received a renal adjusted dose of melphalan at 140 mg/m^2. Mycophenolate mofetil and valganciclovir were withheld during neutropenia until engraftment. No patients received post-transplant filgrastim. Median duration of hospitalization was 18 (15-20) days. Six patients achieved hematologic complete remission while 2 patients had a partial response following ASCT. Post ASCT reactivation of CMV was seen in 4 patients. Median survival from initial AL diagnosis is 44 (11-136) Months.

Conclusion: The strategy of OHT followed by ASCT is therefore feasible in select patients with dominant cardiac involvement and advanced heart failure.

Biography

Kamble is Professor of Medicine in Hematology-Oncology, Cell and Gene Therapy, Baylor College of Medicine and Methodist Hospital, Houston, TX. He has served as Assistant Professor of Medicine and Associate director of Hematology-Oncology fellowship program at Oklahoma University Health Sciences Center (OUHSC). Dr. Kamble is primarily interested in hematologic malignancies including multiple myeloma and hematopoietic stem cell transplantation. He was conferred Union against cancer (ICRETT, Geneva) award in 1994 to study molecular aspect of chronic myelogenous leukemia and bone marrow transplant in Hammersmith hospital, London and Central Science and Industrial Research (CSIR) award in 1995 to study stem cell transplantation in Cornell University, New York. Dr. Kamble is board certified in Internal Medicine and Medical Oncology. He has published extensively in prestigious journals including, Blood, Biology of Bone marrow transplantation and Journal of Clinical Oncology and regularly reviews manuscripts for Blood, Biology of bone marrow transplantation and Bone marrow transplant. Dr. Kamble's clinical interests are in innovative reduced conditioning protocols, *in vivo* T-cell depletion and novel approaches to reduce and treat graft-versus-host disease.

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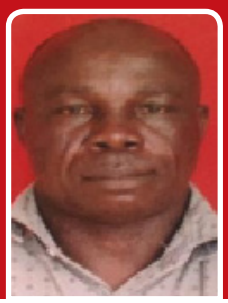

Akinneye J O

Federal University of Technology Akure, Nigeria

Isolation and characterization of *Eugenia aromatica* oil extract against tropical warehouse moth *Ephestia cautella* [Lepidoptera: pyralidae] in cocoa beans

Cocoa bean is a raw material used for the production of chocolate and other confectionaries. *Ephestia cautella* is the major pest of dried cocoa beans in storage and synthetic insecticide like organo-chlorides and organophosphates are the major insecticides used to control this pest in storage which further post health hazard to man and his environment. This then necessitate the search for insecticide of plant origins which are bio-degradable and non-toxic to man. This study investigates the contact and fumigant efficacy of the powder and oil extract of *Ephestia aromatica* on the developmental stages of *E. cautella*. Powders of *E. aromatica* were administered at different concentrations (0.5 g, 1.0 g, 1.5 g, 2.0 g and 2.5 g). The oil from *E. aromatica* was extracted with ethanol using soxhlet extractor and redistilled using rotary evaporator and tested as fumigant insecticidal against development stages of *E. cautella* at 0.5 ml, 1.0 ml, 1.5 ml, 2.0 ml and 2.5 ml. Egg hatchability, adult emergence, larvae and adult mortality of *E. cautella* were used as indices of insecticidal activities at 24 hrs, 48 hrs, 72 hrs and 96 hrs post-treatment. Essential oil obtained from the plant was purified using thin layer chromatography and analyzed by Gas Chromatography Mass Spectrometer (GC-MS). Result obtained shown that *E. aromatica* powder and oil completely inhibited egg hatchability and adult emergence both as contact and fumigant. Except the 0.5 g of *E. aromatica* powder that recorded 50.00% larva mortality and 51.67% adult mortality, other treatment concentrations recorded 90-100% larva and adult mortality. At 2.5 ml oil extract tested as contact and fumigant larvicides after 96 hrs recorded 92.98% and 98.23% mortality, respectively. Results from phytochemical analysis of the oil showed that the major components were eugenol (82.044%) and Caryophyllene (11.716%). These findings suggested that *E aromatica* extract could be a potential source of insecticide which may be used for the production of bio-pesticide.

Biography

Akinneye J O is an Associate Professor and has his expertise in the field of applied entomology and in the evaluation of medicinal plant for the control of stored product pest. He has provided new strategies for local farmers for the control of stored product pests. His research interest is focused on the biology and control of lepidopterous pest of stored products. He has 15 years of research, teaching and administration at the Federal University of Technology Akure, Ondo State, Nigeria, where he has supervised many undergraduate and postgraduate students.

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