

Joint Event on



International Conference on

**CARDIOLOGY AND
CARDIOVASCULAR MEDICINE**

&

International Conference on

**STEM CELLS AND
REGENERATIVE MEDICINE**

June 18-19, 2018 | Osaka, Japan

DAY 1

S p e c i a l S e s s i o n



Myles Suehiro

Hawaii Institute for Health and Healing LLC
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Biography

Myles Suehiro completed his graduation from University of Colorado Boulder in 1965. He is a recipient of several fellowships and certification in Internal medicine including Fellowship in Anti-Aging Regenerative and Functional Medicine. He worked as an Assistant Professor at Charles R. Drew Post-graduate Medical School till 1986, after which he was appointed as the Director of I.C.U. at City View Hospital, Los Angeles and Medical Director at Cardio-Pulmonary Lab in 1990. He holds immensely vast experience in the field of medicine (more than 45 years) and is interested in the potential of treating rare disorders with the help of regenerative and functional medicine. At present he works as the Director of the Ha-waii Institute for Health and Healing, LLC.

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A SYSTEMS METHOD FOR THE COMPLEXITY IN REGENERATIVE MEDICINE

Modern medicine is based on the scientific method of observation, a hypothesis of etiology and testing that hypothesis by therapeutic trial. This method has worked well in acute diseases of a single etiology. With the success of this methodology came the sequela of chronic debilitating diseases of greater complexity with which the basic scientific method demonstrated to be difficult due to the nature of complexity. Complexity in contrast to complication refers to unpredictability and inconsistent response to a given intervention. Chronic diseases which are the focus of Regenerative Medicine are models of complexity due to their multiple interacting processes. This complexity thus demands a different methodology which would cope with the ever-changing multiple processes. A systems method or holistic approach would be an iterative, repetitive process focusing on the fundamental process of inflammation which underlies all diseases. Because inflammation has many different factors, a systematic approach to balance these underlying factors of inflammation while adjusting to the new changes ensuing from intervention must be constantly monitored. The implementation of stem cells in the chronic diseases of Regenerative Medicine would also benefit from this systems approach by decreasing the underlying inflammation and allowing the regenerative process to focus on the disorder of extreme concern. Stem cells, given intravenously, will follow the course of circulation by migrating to areas of greater inflammation. Stem cells like other cells would thrive and be more productive if placed in a stimulating environment. Therefore, the implementation of stem cells in Regenerative Medicine should be a methodical process to control generalized inflammation and allow the stem cells, by providing a stimulating environment for the better function, to focus on disorders where the conventional methods of treatment are limited.



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DAY 1

Scientific Tracks & Abstracts

Day 1

SESSIONS

June 18, 2018

Bioimaging techniques | Clinical Cardiology | Advances in Regenerative Medicine
and Tissue Regeneration | Heart Disease Management | Clinical Research

Session Introduction

Session Chair

Nidhish Tiwari

Albert Einstein College of
Medicine, USA

Session Co-chair

Sisen Zhang

Henan University of
Chinese Medicine, China

Title: **Imaging of the coronary artery diseases in women**

Ma Amparo Pineda Tovar, Mexican Social Security Institute, Mexico

Title: **Patient centered myocardial perfusion imaging**

Yariela Herrera, Santo Tomas Hospital, Panama

Title: **Study on molecular mechanism of vascular smooth muscle relaxation by incorporating the wenxiang diagram into the NMR**

Guo-Ping Zhou, Guangxi Academy of Sciences, China.

Title: **Multi-center clinical report of cardiopulmonary resuscitation with abdominal lifting and compression**

Danyang Peng, Henan University of Chinese Medicine, China

Title: **Standard versus abdominal lifting and compression cardiopulmonary resuscitation**

Vivian Liu, Henan University of Chinese Medicine, China

Title: **Radiofrequency catheter ablation of frequent premature ventricular complexes influences left ventricular function**

Agnieszka Wojdyla-Hordynska, University Hospital Opole, Poland

IMAGING OF THE CORONARY ARTERY DISEASES IN WOMEN

Ma Amparo Pineda Tovar

Mexican Social Security Institute, México

Coronary artery disease (CAD) remains the leading cause of death in Mexico and Western world. Symptoms in women are more subtle. Women usually feel general tiredness and lack of energy, in contrast to men having chest pain. This implies that women do not receive a timely and early diagnosis. According to the National Health Information System, 20 of 100 Mexican women die of cardiovascular disease, 68.5% of Mexicans have problems of obesity, overweight, diabetes, high blood pressure, conditions that increase the risk of CAD. SPECT myocardial perfusion scintigraphy (MPS). With EKG stress or pharmacological test is currently appropriate for diagnosis, risk assessment, stratification, myocardial viability, evaluation of left ventricular function. The Objective of this investigation is to show that SPECT MPS is a noninvasive diagnostic test that identify women with increased CAD risk. Cardiac SPECT MPS is a noninvasive diagnostic and prognostic test that identify women with high CAD risk and establish timely and early the therapeutic interventions.

BIOGRAPHY

Medical doctor with over fifteen years of experience in Nuclear Cardiology medicine additional studies and coursework's in several medical topics. A speciality in Nuclear Medicine, and several coursework's in Radiological Protection at the National Institute for Nuclear Research (ININ), México, Medical Scintigraphy, Cardiological SPECT Image and Cardiological PET. Lately a Master degree. A training en Cardiology, Internal Medicine, and actually training Heart Angiotomography.

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PATIENT CENTERED MYOCARDIAL PERFUSION IMAGING

Yariela Herrera

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Just like in many other medical fields, Nuclear Cardiology's practice is aiming to shift to a patient centered attention, where the laboratories will focus on value based care rather than a volume based one. In the 1990's and the past decade a 2.5 increase in Myocardial Perfusion Imaging (MPI) volume raised awareness of the incremental in radiation burden that was not necessarily impacting health care outcomes. Since then, efforts have been made to provide a more personalized care to meet the patient's real necessities. In order to achieve the six core needs of Health care identified by the Institute of Medicine, Nuclear Cardiology laboratories can provide better care by assuring Patient safety; this process can be achieved by first of all, identifying the candidates that will benefit from imaging, Appropriateness Criteria for Nuclear Cardiac imaging Procedures has been published to support the referring an nuclear physicians. Also, empowering the patient, providing proper education and informed consent of the nuclear cardiac imaging procedures will improve health care. Last, but not least, the nuclear physician must considered the MPI protocol that best fits the patient's needs and not believe that "one size fits all". Taking the patient's condition in consideration will allow to decrease the radiation activity administered, to achieve better quality images that will support the referring clinician in the best next step in the patient's management.

BIOGRAPHY

Yariela Herrera is a nuclear medicine physician. She earned her medical doctor degree at Panama's University Medical School. She completed her Internal Medicine Specialty at Hospital Santo Tomás. Later she performed her Nuclear Medicine fellowship at the School of Medicine and Health Sciences of El Colegio Mayor Nuestra Señora del Rosario, located in Bogota, Colombia. She conducted her training at La Fundación Cardioinfantil – Instituto de Cardiología. She is the Chief of Nuclear Medicine at Novalis Treatment Center in Panama Pacífica Hospital and a Nuclear Medicine physician in Santo Tomás Hospital.

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STUDY ON MOLECULAR MECHANISM OF VASCULAR SMOOTH MUSCLE RELAXATION BY INCORPORATING THE WENXIANG DIAGRAM INTO THE NMR

Guo-Ping Zhou

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Physiologic relaxation of vascular smooth muscle is induced by the cyclic guanosine monophosphate (cGMP)-dependent protein kinase Ia enzyme (cGKI α), which activates myosin phosphatase (MLCP). This activation process is thought to occur through the interaction involving both N- and C-terminal leucine zipper coiled-coil (LZCC) domains of the kinase enzyme (cGKI α) with the myosin binding subunit (MBS) of MLCP. In this study, we summarize how to define the LZCC domains in both N-terminal cGKI α ¹⁻⁵⁹ and C-terminal MBS proteins using predictive and experimental methods, how to make a rapid and accurate structure determination of a cGKI α ¹⁻⁵⁹ molecule using NMR's residual dipolar coupling (RDC) measurements, and how to identify the existence of a weak protein interaction between N-terminal LZCC domain (cGKI 1-59) and a LZCC domain (MBSCT42) within the C-terminal MBS. In addition, the location and orientation of the residues in LZCC proteins can be readily visualized using a novel diagram, the so-called "wenxiang diagram", which is more advantageous than traditional helical wheel diagrams in analyzing LZCC protein structures and their action mechanisms. Using the composed Wenxiang diagrams, we have characterized the interaction between cGKI α 1-59 and another LZCC molecule (MBSCT42), and deduced that the most affected residues of these two LZCC molecules might be at the positions d, a, e and g. It is intriguing to see that the successful incorporation of Wenxiang diagrams and NMR spectroscopy in the LZCC structural and functional studies may provide some insights into molecular mechanism of vascular smooth muscle relaxation and contraction.

BIOGRAPHY

Guo-Ping Zhou is a current Professor of Gordon Life Science Institute, USA. He is also an Adjunct Professor of several academics in both USA and China. He received his PhD in Biophysics from University of California at Davis, and completed his postdoctoral training at Stanford University and Harvard University, respectively. He has determined the 3D NMR structures of some important biomolecules, and successfully introduced the novel diagram approach to elucidate the mechanisms of the protein-biomolecule interactions, and protein misfolding diseases observed by NMR spectroscopy. His current research is focused on the molecular mechanism of Neural Cell Adhesion Molecule polysialylation using NMR and biophysical approaches. In addition, he has also edited some special issues on the fields of structural biology and medicinal chemistry for several influential scientific journals as an Editorial-Board Member and Guest Editor.

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MULTI-CENTER CLINICAL REPORT OF CARDIOPULMONARY RESUSCITATION WITH ABDOMINAL LIFTING AND COMPRESSION

Danyang Peng

Henan University of Chinese Medicine, China

Objective: To study the effectiveness and safety of abdominal lifting and compression method in patients suffered from cardiac arrest(CA).

Methods: According to the inclusion and exclusion criteria, 72 patients from Hainan People's Hospital and Zhengzhou People's Hospital were enrolled for study of abdominal lifting and compression (ALC) method from January 2014 to June 2015. The markers of respiratory and circulatory performance of all patients were recorded, and re-collected after CPR with ALC. In addition, the data of demographics and clinical signs of patients were collected. The rates of restoration of spontaneous circulation (ROSC) and successful resuscitation were calculated. Differential analysis of single-group design univariate quantitative and qualitative data was carried out.

Results: A total of 72 patients were included finally. The ROSC rate was 15.3% (11/72) after using ALC equipment, and there was no statistically significant difference in rate of ROSC ($P=0.566$) between ALC and pre-test(13.0%). However, compared with NT group resuscitated without using ALC method or with using chest compression method, the rate of ROSC was significantly improved in the ALC group (15.3% vs.0.1%, $P<0.01$).

Conclusions: Abdominal lifting and compression CPR equipment is stable, portable and safe in practice. Abdominal lifting and compression CPR method has its prominent role in saving patients from respiratory and cardiac arrest, and it is sufficient to overcome the disadvantages of conventional CPR method.

BIOGRAPHY

Danyang Peng, Master of medicine, emergency department attending physicians of Zhengzhou people's hospital has published 5 academic papers in domestic journals, 2 of them are about abdominal lifting and compression CPR. She has participated in many clinical applications of abdominal lifting and compression CPR, and has more profound understanding about this new technology.

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STANDARD VERSUS ABDOMINAL LIFTING AND COMPRESSION CARDIOPULMONARY RESUSCITATION

Vivian Liu

Henan University of Chinese Medicine, China

Background: This study compared outcomes of abdominal lifting and compression cardiopulmonary resuscitation (ALP-CPR) with standard CPR (STD-CPR).

Materials and Methods: Patients with cardiac arrest seen from April to December 2014 were randomized to receive standard CPR or ALP-CPR performed with a novel abdominal lifting/compression device. The primary outcome was return of spontaneous circulation (ROSC).

Results. Patients were randomized to receive ALP-CPR ($n = 40$) and STD-CPR ($n = 43$), and the groups had similar baseline characteristics. After CPR, 9 (22.5%) and 7 (16.3%) patients in the ALP-CPR and STD-CPR groups, respectively, obtained ROSC. At 60 minutes after ROSC, 7 (77.8%) and 2 (28.6%) patients, respectively, in the ALP-CPR and STD-CPR groups survived ($p = 0.049$). Patients in the ALP-CPR group had a significantly higher heart rate and lower mean arterial pressure (MAP) than those in the STD-CPR group (heart rate: 106.8 versus 79.0, $p < 0.001$; MAP: 60.0 versus 67.3mmHg, $p = 0.003$). The post treatment PCO₂ was significantly lower in ALPCPR group than in STD-CPR group (52.33 versus 58.81, $p = 0.009$). PO₂ was significantly increased after ALP-CPR (45.15 to 60.68, $p < 0.001$), but it was not changed after STDCPR. PO₂ after CPR was significantly higher in the ALP-CPR group (60.68 versus 44.47, $p < 0.001$). There were no differences between genders and for patients who are > 65 or ≤ 65 years of age.

Conclusions: The abdominal lifting and compression cardiopulmonary resuscitation device used in this study is associated with a higher survival rate after ROSC than standard CPR.

BIOGRAPHY

Vivian Liu has completed her PhD from Southern Medical University (China), major in Biochemistry & Molecular Biology. Now she is the director of Research Administration & International Collaboration of People's Hospital Affiliated to Henan University of Chinese Medicine. She has published 3 papers on oral cancer in English and Chinese. As one of the new members in team, she is trying to make abdominal lifting and compression CPR well known around the world.

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Note:

RADIOFREQUENCY CATHETER ABLATION OF FREQUENT PREMATURE VENTRICULAR COMPLEXES INFLUENCES LEFT VENTRICULAR FUNCTION

Agnieszka Wojdyla-Hordynska

University Hospital Opole, Poland

Frequent premature ventricular complexes (PVC) are related to reversible tachycardia-induced cardiomyopathy. However, the role of arrhythmia burden on the outcome of the catheter ablation has not been fully recognized. The aim of this study was to assess the effect of catheter ablation and PVC burden in patients with and without structural heart disease (SHD) on left ventricular ejection fraction (LVEF).

Methods: Transthoracic echocardiography was done before and six months after radiofrequency catheter ablation in 109 consecutive patients (61 men, age 55 ± 17 years) with frequent PVCs. Sixty-five (59.6%) patients had underlying SHD.

Results: The catheter ablation procedure was successful in 93 (85.3%) patients. Baseline PVC burden was higher in patients with SHD ($22,267 \pm 12,934$) compared to those without concomitant SHD ($15,546 \pm 7888$), $p = 0.005$. Nevertheless, patients with $LVEF \leq 50\%$ at baseline presented greater LVEF recovery (from 44% to 56%) than those with $LVEF > 50\%$ at baseline after catheter ablation. In both groups, the LVEF improved ($p < 0.001$); however, no difference was observed between patients with SHD ($5.7\% \pm 1.37\%$) and without ($4.6\% \pm 0.96\%$) SHD; $p = 0.89$. PVC burden was higher in patients with ($24,350 \pm 2776$ PVC/day) compared to those without ($17,588 \pm 1970$ PVC/day) improvement of LVEF. In multivariate regression analysis PVC burden $> 20,000$ /day (but not age, $p = 0.95$; gender, $p = 0.89$; presence of SHD, $p = 0.53$; QRS complex width of the treated PVC, $p = 0.21$, LVEF before ablation, $p = 0.19$; and site of origin, $p = 47$) predicted improvement in LVEF after successful catheter ablation (odds ratio: 3.53; 95% confidence interval: 1.15–10.75; $p = 0.023$).

Conclusions: Catheter ablation of frequent PVCs improves left ventricular function and in multivariate analysis predicted improvement of LVEF within six months after the successful catheter ablation procedure in patients with PVC burden exceeding 20,000/24 h.

BIOGRAPHY

Agnieszka Wojdyla-Hordynska has completed her Medical Doctor from Silesian University (Poland), she has reached an MBA degree in Health Care Management in 2012 in University Opole, Poland, successfully finished her cardiology and interventional electrophysiology training in 2013, started her PhD studies in Silesian University in 2017. She is an assistant doctor in the Clinical Cardiology Department and Electrophysiology Laboratory of University Hospital Opole in Poland. In the years 2010-2011 she has been awarded by EHRA, a clinical electrophysiology fellowship in HZL, Leipzig, Germany. She proceeds her research in ventricular arrhythmias and means of ablation, as well as devices and heart failure management. She is a skilled operator, interventional electrophysiologist and device implanting doctor.

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DAY 2

Scientific Tracks & Abstracts

Day 2

SESSIONS

June 19, 2018

Cancer Stem Cells | Cardiac Nursing | Nanotechnology in Regenerative Medicine | Pediatric Cardiology | Treatment of Diseases by Stem Cell Therapies | Nuclear Cardiology

Session Introduction

Session Chair

Myles Suehiro

Hawaii Institute for Health
and Healing LLC, Hawaii

Session Co-chair

Kampon Sriwatanakul
Vita Stem Co. Ltd., Thailand

Title: **Study on the dose evaluation variation of left ventricular myocardial and left anterior descending induced by heartbeat in left breast carcinoma radiotherapy**

Qian Li, Shandong University, China

Title: **The role of hematopoietic cell-derived multipotent stem cells in skin tissue repair and regeneration**

Yunyuan Li, University of British Columbia, Canada

Title: **Platelet lysate induces chondrogenic differentiation of umbilical cord derived mesenchymal stem cells**

Ghmkin Hassan, Okayama University, Japan

Title: **The effectiveness of preoperative cardiopulmonary rehabilitation for improvement of postoperative quality of life in patients undergoing coronary artery bypass surgery**

Mei-Tien Yeh, Cardinal Tien College of Healthcare, Taiwan

STUDY ON THE DOSE EVALUATION VARIATION OF LEFT VENTRICULAR MYOCARDIAL AND LEFT ANTERIOR DESCENDING INDUCED BY HEARTBEAT IN LEFT BREAST CARCINOMA RADIOTHERAPY

Qian Li

Shandong University, China

Purpose: To study the dose evaluation variation of left ventricular myocardial (mLV) and left anterior descending (LAD) induced by heartbeat in intensity modulated radiotherapy (IMRT) of left breast carcinoma.

Methods: 15 female patients were enrolled. All the patients received electrocardiography gated 4D-CT scan in inspiration breath hold, and CT images were sorted into 20 phases (0%, 5%.....90%, 95%) according to cardiac cycle. Then, the mLV and LAD were delineated slice by slice, and the left breast carcinoma IMRT plans were designed on 0% phase CT images. The volume and dice similarity coefficient (DSC) of mLV were calculated, and the V10, V20, V30, V40 and Dmean of LAD and mLV were compared among different phases.

Results: (1) The average rate of DSC variation of mLV was eightfold of volume, which reached to 472.07% with statistically significant difference ($P < 0.001$). (2) The average rate of variation of mLV Dmean was $(18.74 \pm 9.32)\%$, up to 41.95% and the difference was statistically significant ($P < 0.001$); the variation range of V10, V20, V30 and V40 of mLV were $(10.06 \pm 9.21)\%$, $(9.24 \pm 9.63)\%$, $(8.45 \pm 9.66)\%$ and $(6.86 \pm 10.00)\%$, and the difference was statistically significant ($P < 0.05$). (3) The average rate of variation of LAD Dmean was $(58.88 \pm 29.10)\%$, up to 130.14%, and the difference was statistically significant ($P = 0.001$); the variation range of V10, V20, V30 and V40 of LAD were $(28.52 \pm 12.11)\%$, $(29.35 \pm 12.65)\%$, $(28.84 \pm 13.74)\%$ and $(26.35 \pm 15.89)\%$, and the difference was statistically significant ($P < 0.001$).

Conclusion: The dose evaluation variation of mLV and LAD which were induced by heartbeat should not be ignored. Our study provided a reference for the accurate prediction of cardiac toxicity, and that could benefit to protection of heart and cardiac sub-structure.

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THE ROLE OF HEMATOPOIETIC CELL-DERIVED MULTIPOTENT STEM CELLS IN SKIN TISSUE REPAIR AND REGENERATION

Yunyuan Li

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Non-healing and chronic wounds cause tremendous suffering and debilitation. To look for new strategies to improve healing of damage skin tissue and understand the mechanism underlining a complex wound healing process, in last a few years, we have conducted a serial of studies to identify healing promoting factors. We found that the macrophage colony-stimulating factor (M-CSF) released from proliferating skin cells could induce a subset of hematopoietic cells to be dedifferentiated into multipotent stem cells. Interestingly, hematopoietic cell-derived, stage specific embryonic antigen (SSEA)-1 and-3 positive, multipotent stem cells were transiently present in the wound site after skin injury. In this study, we further explored the roles of these hematopoietic cell-derived multipotent stem cells to repair injured skin and hair regeneration in a mouse model. Hematopoietic cell-derived multipotent stem cells were generated by culture mouse splenocytes in a medium containing M-CSF. Skin excisional wounds were generated by punch biopsy in mice which received nothing (control) or one million splenocyte-derived stem cells by intra-dermal or tail vein injection simultaneously. Injected stem cells expressing GFP or labeled with a fluorescent dye Dil were used for cell tracing. Immunofluorescent staining was used to identify the cell source in healing skin tissue. Results revealed that addition of M-CSF or its antibody to increase or reduce the number of hematopoietic cell-derived stem cells at the wound site could accelerate or slow skin wound healing in mice. We also demonstrated that injected hematopoietic cell-derived stem cells could be differentiated into fibroblasts, keratinocytes and blood vessel-like structures *in vivo*. These blood cell-derived skin cells were the major contributions of healing skin. Furthermore, our results suggested that hematopoietic cell-derived multipotent stem cells could participate in new hair follicle regeneration. In conclusion, hematopoietic cells are the major contributions and cell source for skin tissue repair and hair regeneration.

 Note:

BIOGRAPHY

Yunyuan Li has completed his PhD in 2005 from the University of Alberta, Canada. He is a senior researcher at Burn and Wound Healing Research Laboratory in the University of British Columbia. He has published over 40 papers. Recently, his research interests were focused on the roles of hematopoietic cell-derived multipotent stem cells in skin wound healing, hair follicle regeneration and inflammation.

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PLATELET LYSATE INDUCES CHONDROGENIC DIFFERENTIATION OF UMBILICAL CORD DERIVED MESENCHYMAL STEM CELLS

Ghmkin Hassan

Okayama University, Japan

Purpose: Articular cartilage has poor repair ability and still confers a major challenge in orthopedics. Mesenchymal stem cells (MSCs) are multipotent stem cells with potential to differentiate into chondrocytes in the presence of transforming growth factor beta (TGF- β). Relevantly, platelet lysate (PL) contains many growth factors including TGF- β and ameliorates cartilage repair. Thus, we investigated the ability of PL to direct chondrogenic differentiation of MSCs along with other standard differentiation components in pellets culture system.

Methods: We isolated and expanded MSCs from human umbilical cords using PL supplement medium and characterized cells by immunophenotyping and differentiation potential to adipocytes and osteocytes. We further cultured MSCs as pellets in chondrogenic differentiation medium supplemented with PL. After 21 days, pellets were processed for histological analysis and stained with alician blue and acridine orange. Expression of SOX9 was investigated by RT-PCR.

Results: Although MSCs maintained their stemness characteristics in PL supplement medium, distribution of cells in pellets cultured in chondrogenic differentiation medium supplemented with PL was more similar to cartilage tissue-derived chondrocytes than negative control. In addition, intense alician blue staining indicated increased production of mucopolysaccharides in differentiated pellets, which also showed elevated expression of SOX9 detected by RT-PCR.

Conclusions: Our data suggest that MSCs could be differentiated to chondrocytes in the presence of PL and absence of exogenous TGF- β . Further research needs to be conducted to understand the exact potential role of PL in chondrogenic differentiation and chondrocyte regeneration.

BIOGRAPHY

Ghmkin Hassan obtained his master degree in biotechnology and molecular biology from Damascus University, Syria. Presently, he is a research scholar at Okayama University, Japan. He was interested in isolation and optimizing stem cell culture conditions which was a part of "mesenchymal stem cell optimization culture conditions" in national commission for biotechnology Syria and his recent focus is on origin of cancer stem cells and its microenvironment.

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Note:

THE EFFECTIVENESS OF PREOPERATIVE CARDIOPULMONARY REHABILITATION FOR IMPROVEMENT OF POSTOPERATIVE QUALITY OF LIFE IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS SURGERY

Mei-Tien Yeh

Cardinal Tien College of Healthcare, Taiwan

Background: After the heart surgery, the patient had surgical wounds pain induce the respiratory dysfunction, sleep disorders, anxiety and other issues lead to the patient delaying getting out of bed, which may easily reduce postoperative activity endurance, and affect the daily activity progress, prolonging postoperative recovery and life quality.

Purpose: To compare the differences in quality of life and the degree of improvement in patients undergoing coronary artery bypass surgery who receives cardiopulmonary rehabilitation before and after surgery.

Object: The case about to undergo coronary bypass surgery

Result: I. Comparison of the quality of life indicators at each time point with the two groups at each time point. (I) At the time of receipt (T0): The average score of the two groups of samples due to physical physiology problems limited role (RP) was less than 20 points. The average score of Role-Restricted Functions (REs) due to emotional problems is less than 50 points. The average scores of the two groups of samples in the remaining quality of life and each scale were greater than 50 points. However, there were no statistically significant differences between the scales. (II) One month after surgery (T5): Between the two groups, only the general quality of life (GH) and physical and physiological function (PF) were statistically significantly different ($p=0.002$, $p=0.010$). This indicates that in the month after surgery (T5), the general health status and physical and physiological function subscales of the experimental group were also better than those of the control group. II. Second, the two groups in the quality of life indicators before and after intervention measures (I) The average scores of the general health status (GH) ' mental health (MH) ' physical function (PF) and vigor (VT) at the time of receipt (T0) in the control group and the experimental group were both lower than those in the first month (T5) after surgery ($p<0.001$). (II) The control group (T0) was higher than the one month after surgery (T5) ($p=0.010$). The experimental group (T0) was lower than the one month after surgery (T5) ($p=0.048$). This indicates that the social function of the control group sample (T0) was better than

the one month after the surgery (T5), and the social function of the experimental group sample at the time of receipt (T0) was worse than that of the surgery one month (T5). (III) The control group (T0) was lower than the one month after surgery (T5) ($p=0.008$). The experimental group (T0) was higher than the one month after surgery (T5) ($p=0.021$). This indicates that the control group sample at the time of receipt (T0) due to emotional problems caused by the degree of limited role (RE) compared with one month after surgery (T5) time difference; experimental group sample (T0) caused by emotional problems The degree of restricted role (RE) is better than one month after surgery (T5). IV Physical Restriction (RP) due to Physiological Problems: The physical and physiological problems (RP) and Body Pain (BP) of the control and experimental groups were similar ($p > 0.05$).

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