



# Workshop



## More sustained combined target control leading to less cardiovascular events and all-cause mortality in patients with type 2 diabetes mellitus

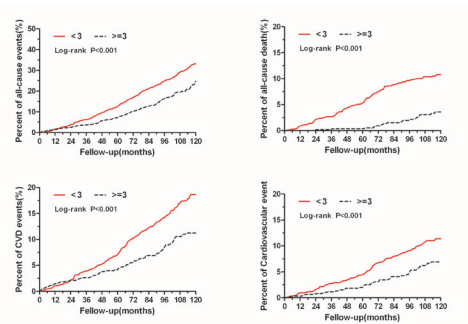
Mingxia Yuan<sup>1</sup>, Gang Wan<sup>2</sup>, Guangran Yang<sup>1</sup>, Xuelian Zhang<sup>1</sup>, Liangxiang Zhu<sup>1</sup>, Jianping Feng<sup>1</sup>, Rongrong Xie<sup>1</sup>, Ning Zhuang<sup>3</sup>, Hanjing Fu<sup>1</sup> and Shenyuan Yuan<sup>1</sup>

<sup>1</sup>Beijing Tongren Hospital, Capital Medical University, China

<sup>2</sup>Beijing Ditan Hospital, Capital Medical University, China

<sup>3</sup>Jinsong Community Health Service Center, China

Chronic complications are the major causes of disabilities and death for diabetic patients. It is well-established that intensive glycemia, blood pressure and lipid management in people with diabetes reduces the risk of microvascular and macrovascular complications, mainly on the basis of evidence from large randomized clinical trials. Yet, translation of these interventions to day-to-day-life settings remains a major challenge. Meanwhile, the GPs from the local healthcare community remain a relatively untapped pool of resources in China. An urgent problem is whether the quality of diabetes care will be compromised as diabetes care shifts increasingly from specialist to primary level. We thus launched the 10-year Beijing Community Diabetes Study (BCDS), to develop a community-hospital integrated management system, with the purpose of translating optimal care to the real-world clinical practice by increasingly involve community GPs in diabetes management.



**Objective:** To assess the quality and effort of the community-hospital integrated diabetes care model, focusing on the effect of the 10-year combined target control on all-cause mortality and cardiovascular events for the patients with type 2 diabetes mellitus (T2DM).

**Methods:** The patients aged 20 to 80 years with T2DM from 15 community health centers among five urban districts were recruited at the baseline (between August 2008 and July 2009), and were followed up to September 2018. Management adjustment strategies on guidelines have been applied by a group of collaborative team members consisting of 15 specialists from tertiary hospital and 120 community GPs. A systemic scheduled training course, including hand-by-hand tutor at the outpatient clinic, were applied to the GPs. The follow-up visit for the patients was completed on schedule. All the metabolic variables were detected. HbA1c was measured at a central laboratory by high-pressure liquid chromatographic assay. To ensure the integrity and also quality of data collection, a supervision team which includes four trained specialists has been checking

the study progress and data records in every community center once or twice yearly. The primary outcome was defined as the proportion of patients reaching an optimal control of glycaemia, blood pressure and lipids. The clinical outcomes such as the incidence and progress of diabetic complications, including cardiovascular events and all-cause mortality were recorded. All of the endpoint events were evaluated and approved by the specialist committee. The database has been established using Epidata version 3.0 and audited for accuracy.

**Results:** 1. 3581 patients with T2DM were recruited in 2008, 2940 (82.1%) patients completed the study. 2. By updated analysis in 2018, 23.5% met all the HbA1c, blood pressure, and LDL-C target values after 10-year intervention, which showed a significant increase compared with that 13.1% in 2013, and 5.9% at the baseline. 3. A total of 1801 patients who went through 10-year follow-up visit and have complete information were analyzed. Among them 613 patients (34.04%) reached combined target equal to or more than 3 times during the 10 years, while the rest of 1188 patients (65.96%) were up to standard less than 3 times. The incidence of all-cause deaths, cardiovascular events and total composite endpoint events in patients who were up to standard more than 3 times was significantly lower than that of patients who were up to standard less than 3 times ( $P < 0.001$ ). The log-rank test showed that the cumulative risks of all-cause deaths, cardiovascular events and the total composite endpoint events in patients who were up to standard more than 3 times were significantly lower than that of patients who were up to standard less than 3 times ( $P < 0.001$ ). The community GPs improved their familiarity with expertise and experience in diabetes management by systematic training. 49 research papers written by the GPs were published.

**Conclusion:** The community-based community-hospital integrated care system was proved to be more effective. The incidence of all-cause deaths and cardiovascular events were significantly reduced by constant combined target control.

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### Biography

Mingxia Yuan is the chief physician and vice-director of department of Endocrinology, Beijing Tongren Hospital, Capital Medical University and vice-Director of the office of diabetes prevention and control in Beijing. She has completed her master's degree from Capital Medical University in 1998.

yuanmx@vip.126.com

### Notes:

## **Neck circumference, an ignored anthropometric indicator, was related to cardiovascular events in Chinese type 2 diabetes**

**Guang-Ran Yang, Ming-Xia Yuan, Gang Wan, Xue-Lian Zhang, Han-Jing Fu, Liang-Xiang Zhu and Shen-Yuan Yuan**

Beijing Tongren Hospital, Capital Medical University, China

**Objective:** Neck circumference (NC) was litter reported to be associated with the risk factors of cardiovascular disease (CVD). However, there was lack of studies about whether NC could predict the CVD events in the Chinese type 2 diabetes people.

**Methods:** Beijing Community Diabetes Study was a prospective, multi-center study conducted at Beijing communities. In this study, CVD events included heart attack, unstable angina pectoris, coronary stent implantation, coronary artery bypass graft, hospitalization for heart failure, and stroke.

**Results:** At baseline, 3,009 diabetic patients were enrolled. After eight-year management, 211 CVD events (105 in men, 106 in women) occurred. All patients were divided into two groups according to the upper quartile of NC (43cm in men and 39cm in women). The incidence of CVD in the NC >43cm group in men was higher than that in the NC ≤43cm group (16.48% vs 8.16%,  $p<0.05$ ). Similar result was found in women ( $p<0.05$ ). The longitudinal incidence of CVD events increased with the increasing of follow-up ( $p<0.05$ ). Cox regression analysis showed that higher NC was related to the incidence of CVD events (adjusted HR=2.325,  $p<0.05$ ).

**Conclusions:** NC was associated with the incidence of CVD events in type 2 diabetes in Chinese communities.

### **Biography**

Guang-Ran Yang is the Chief Physician & Associate Professor of Department of Endocrinology, Beijing Tongren Hospital, Capital Medical University in china. His research interest is in the area of Diabetes and its complications.

yanggr\_55@126.com

## **Analysis of the effect of nine consecutive year's intensive management and number of achieving the target control on endpoint events in T2DM in Sanlitun Community Health Service Center in Beijing**

**Xue-Lian Zhang,<sup>1</sup> Shen-Yuan YUAN,<sup>1\*</sup> Chen-Mei ZHAO,<sup>2</sup> Gang WAN,<sup>3</sup> Ming-Xia YUAN,<sup>1</sup> Guang-Ran YANG,<sup>1</sup> Han-Jing FU,<sup>1</sup> Liang-Xiang ZHU,<sup>1</sup> Rong-Rong XIE,<sup>1</sup> Xue-Li CUI,<sup>2</sup> and Shen-Yuan YUAN<sup>1\*</sup>**

<sup>1</sup>Beijing Tongren Hospital, Capital Medical University, China

<sup>2</sup>Sanlitun Community Health Service Center, China

<sup>3</sup>Beijing ditan hospital, capital medical university, China

**Objective:** To investigate the effect of achieving the target control more than 3 times on endpoint events during 9 consecutive year's annual assessment in T2DM in Sanlitun Community Health Service Center in Beijing, including blood glucose, blood pressure, lipids profiles and the joint target control.

**Methods:** In Beijing Community Diabetes Study (BCDS), 224 patients with T2DM from Sanlitun community Health Service Center were enrolled in 2008. All patients were randomly assigned to the intensive management group (n=113) and the standard management group (n=111). All patients were followed up for nine consecutive years from January 2009 to December 2017. Systolic blood pressure (SBP), diastolic blood pressure (DBP), glycosylated hemoglobin (HbA1c) and low-density lipoprotein cholesterol (LDL-C) were detected as the main indexes, and the endpoint events were also carried out at the same time. The endpoint events were analyzed by using survival analysis (Kaplan-Meier method) based on management grouping and whether achieving the target control more than 3 times or not.

**Results:** During the nine-year follow-up, the abscission number is 35(14.29%), among which 14 (12.39%) is in the intensive management group, and 21 (18.92%) is in the standard management group. The incidence of diabetic retinopathy (6 cases, 5.41%) and diabetic nephropathy (13 cases, 11.71%) in the standard management group were significantly higher than that of intensive management group (1 case, 0.88%; 5 cases, 4.42%) respectively (P<0.05). However, there were no significant differences on the other endpoint events between the two groups (P>0.05). All-cause death is 23 cases, in which patients who achieved the target control (HbA1c, LDL-C) and the joint target control more than 3 times were significantly lower than that of less than 3 times (P<0.05). As far as death caused by cardiovascular events, cerebrovascular events and newly onset coronary heart disease is concerned, there were no significant differences on the afore endpoint events between the two groups based on target control more than 3 times or not (P>0.05). There were less incidence of new onset cerebrovascular events, stenosis or occlusion of large arteries and diabetic microvascular complications in patients who achieved target control (HbA1c, LDL-C) and the joint target control more than 3 times than those with target control less than 3 times (P<0.05).

**Conclusions:** The intensive management can effectively reduce the occurrence of microvascular complications, especially in patients who keep achieving the target control more than 3 times. The incidence of all-cause death and the other endpoint events decreased in T2DM who achieving the joint target control more than 3 times during the nine-year-management, which improve survival time and life quality.

### **Biography**

Xue-Lian Zhang is from the Department of Endocrinology, Beijing Tongren Hospital, Capital Medical University, Beijing, China.

zfsxia@126.com

# Oral - Sessions



## **Cytokines and their signalling pathways as therapeutic targets in atherosclerosis**

**Dipak P Ramji**

Cardiff University, United Kingdom

Cytokines play crucial roles in the control of immune and inflammatory responses. Abnormalities in cytokines, their receptors or the downstream signalling they initiate are associated with a number of inflammatory disorders, including atherosclerosis. Approaches to limit the actions of pro-inflammatory cytokines include neutralization (blocking antibodies or decoy receptors), receptor antagonists and small molecule inhibitors of intracellular signal transduction pathways. Other avenues include use of anti-inflammatory cytokines or agents that augment their expression/actions. A more thorough understanding of cytokine actions in disease, particularly signalling pathways, is essential for the identification of new therapeutic targets/approaches. A key area of research focus in my laboratory has been on cytokine actions and signalling in atherosclerosis. Atherosclerosis, the underlying cause of myocardial infarction and cerebrovascular accidents, is an inflammatory disorder of medium and large arteries and is responsible for most deaths worldwide. Cytokines such as interferon- $\gamma$  and interleukin (IL)- $1\beta$  promote atherosclerosis whereas others, particularly IL-10, IL-33 and transforming growth factor- $\beta$ , attenuate the disease. Our research has provided novel insights into intracellular signalling pathways and molecular mechanisms underlying the actions of such cytokines, particularly in macrophages in atherosclerosis. These will be presented in the context of current therapies and future drug discovery and development. Interesting, many conventional therapies, such as statins and nutraceuticals, also modulate cytokine signalling and these will be also discussed. Finally, the limitation of cytokine therapeutics and the possibility of approaches involving modulation of cells that produce anti-atherogenic cytokines will be presented.

### **Biography**

Dipak P Ramji is professor of cardiovascular science at the school of biosciences in Cardiff University. He received his BSc (Hons) degree (Biochemistry) and his PhD (Molecular Biology) from the University of Leeds. This was followed by post-doctoral research at the European Molecular Biology Laboratory (Heidelberg) and the Istituto di Ricerche di Biologia Molecolare P. Angeletti (Rome) with fellowships from the Royal Society and the EU. He joined Cardiff University in 1992 and completed 25 years of service in August 2017. His research is focused on understanding how the immune and inflammatory responses regulate cellular processes in heart disease with the goal of attaining deeper mechanistic insight and identifying preventative/therapeutic agents. His research has been funded by several organisations and received continuous funding from the British Heart Foundation since 1997. He has published over 150 research articles (h index 34 and i10 index 68 with over 5700 citations). He is an editorial board member of 16 international journals; regular organising committee member, speaker and track/session chair at international conferences on heart disease; involved in grant evaluation for over 20 organisations; and supervised over 25 PhD students; involved in teaching and administration, including postgraduate tutor for the biomedicine division at the School of Biosciences and external examiner for Biochemistry and Biomedical Sciences at the University of Reading and King's College London.

Ramji@Cardiff.ac.uk

## **Factors associated with right ventricular dysfunction among patients with hypersensitivity pneumonitis**

**Elena Leonova**

Federal Central Tuberculosis Research Institute, Russia

**Statement of the Problem:** Cardiovascular diseases are the most common comorbidities among patients with chronic lung diseases (CLD). As we know, right heart failure is very severe complications of CLD, which contributes significantly to morbidity and mortality. However, there is very little literature describing factors associated with right ventricle (RV) dysfunction among patients with chronic hypersensitivity pneumonitis (HP). The purpose of this study was to investigate factors associated with the RV systolic dysfunction among patients with chronic HP.

**Methodology and Theoretical Orientation:** We identified 86 patients with chronic HP, who underwent echocardiography, spirometry, plethysmography, diffusing capacity of carbon monoxide (DLCO), bronchoscopy and lung biopsy. Pulmonary high-resolution computed tomography (HRCT) was assessed by Kazerooni scale (ground glass and lung fibrosis). Aortic pulse wave velocity (PWV) and body mass index also were evaluated as well. RV systolic function was assessed among all subjects using different methods (tricuspid annular plane systolic excursion (TAPSE), RV myocardial performance index (MPI) and RV systolic excursion velocity by tissue Doppler (S')).

**Findings:** RV systolic dysfunction was found in 40.7% of subjects by TAPSE and 38.4% by RV MPI and S'. All parameters of RV systolic function correlated with total lung capacity ( $p < 0.01$ ), DLCO, HRCT (lung fibrosis and ground glass ( $p < 0.001$ )), PWV ( $p < 0.001$ ). Multivariate regression analysis showed that the factors associated with RV systolic dysfunction were lung fibrosis ( $p = 0.001$ ), DLCO ( $p = 0.003$ ) and PWV ( $p = 0.008$ ).

**Conclusion and Significance:** Systolic function of the right ventricle is associated with lung fibrosis, diffusion disturbance and arterial stiffness among patients with chronic hypersensitivity pneumonitis.

### **Biography**

Elena Leonova PhD is a researcher of the Department of differential diagnosis of Interstitial lung diseases (Federal Central Tuberculosis Research Institute). After defending her dissertation on clinical and functional characteristics of patients with COPD and atrial fibrillation, she has focused on studying cardiovascular problems among patients with interstitial lung diseases.

zei86@mail.ru



## **Chronic fatigue syndrome: A unifying hypothesis for an etiological diagnosis**

**Kaiss Jarkass**

Ministry of Education, Syrian Arab Republic

**Statement of the Problem:** ME/CFS is a disabling complex chronic illness affecting millions of people around the world. It has a devastating impact on the lives of patients and their families, causing losses estimated at billions of dollars annually in medical bills and lost incomes. The present paper seeks to put forth a plausible unifying hypothesis for an etiological diagnosis of this debilitating illness. It begins with a summary of hypotheses that have been suggested for explaining ME/CFS. An attempt is then made to put together various pathogenetical and pathophysiological mechanisms into one hypothesis, suggesting a single etiological factor and linking all other mechanisms to one causality. Firstly, the paper defines several criteria that any diagnosis should meet in order to be considered plausible. Secondly, it suggests a clinical diagnosis that might meet the criteria and account for the constellation of symptoms associated with ME/CFS. It explains the plethora of pathophysiological mechanisms and manifestations in the light of the suggested diagnosis. Thirdly, it anticipates and attempts to answer some of the issues that may be raised. Fourthly, it pinpoints challenges that need to be addresses in the light of the suggested causality. Finally, the paper suggests a plan for diagnosing patients with ME/CFS and a plan for ex juvantibus treatment defining challenges and strategies for further study.

### **Biography**

Kaiss Jarkass graduated from Saint Petersburg State Medical University I.P. Pavlov (Formerly, First Leningrad I. P. Pavlov Medical Institute) in 1988. He has 20 years' experience in field work both in government sector, as a school health physician, and in private practice as a GP. He has interest mainly in infectious diseases, chronic illnesses and ME/CFS.

jarkaiss@hotmail.com

## HIV, Hepatitis B & Hepatitis C

Lia Millanaise Jones<sup>1</sup>, Jaswinder Rai<sup>2</sup>, Dr Stephen Keay<sup>3</sup> and Professor Geraldine Hartshorne<sup>1</sup>

<sup>1</sup> Warwick Medical School, UK

<sup>2</sup> Centre for Reproductive Medicine, University Hospitals Coventry and Warwickshire NHS Trust, Coventry, CV2 2DX

<sup>3</sup> Centre for Reproductive Medicine, University Hospitals Coventry and Warwickshire NHS Trust, Coventry

**Background:** This mixed methods study consists of a literature review and a service evaluation of a leading fertility centre. The literature review identifies best practice in the avoidance of the transmission of viruses during assisted conception in patients carrying HIV and hepatitis B/C, and how this affects their pregnancy outcomes.

**Aims:** To identify best practice in avoiding transmission of viruses during assisted conception in people with HIV and Hepatitis B (HBV) and Hepatitis C (HCV). To evaluate current conception methods for viral positive families at the Centre for Reproductive Medicine (CRM), and compare them with published data to determine success and opportunities for improvement.

**Methods:** An online literature search amassed 116 studies for analysis and 10 papers were shortlisted. From these papers, data was collected such as author, viral illness, and which parent affected. For the service evaluation, a list of viral positive patients receiving treatment at CRM in the past 5 years was assessed for treatment method and outcome.

**Results:** The pregnancy rate for viral positive families at CRM was 43% and the live birth rate was 30.8%. The live birth rates for HIV, HBV and HCV were 13.3%, 35.9% and 33.3%, respectively. At  $p < 0.05$ , the p-value was 0.32663, meaning there was not a statistically significant difference between pregnancy and live birth rates where the male was seropositive vs the female.

**Conclusion:** Assisted conception outcomes are worse when the female is seropositive, rather than the male, for HIV, HBV and HCV. Options for viral positive men, such as sperm washing, are safe and effective. Viral positive patients treated at the Centre for Reproductive Medicine have higher pregnancy and live birth rates than their viral negative counterparts.

**Key words:** Hepatitis B virus, Hepatitis C virus, HIV, intracytoplasmic sperm injection, in vitro fertilisation.

### Biography

Lia Millanaise Jones is a third-year medical student at Warwick Medical School with an interest in Obstetrics and Gynaecology, and surgical research. She graduated with a First Class Honours in Medical Science from De Montfort University in 2016.

liajones1994@live.co.uk

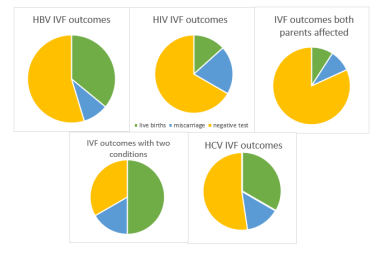


Diagram II: Pie chart of the pregnancy outcomes for viral positive families at CRM.

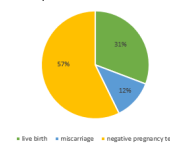


Diagram III: Pregnancy and live birth rates in viral positive men vs women.

