

· 卷首语 ·

丰富中国 2 型糖尿病防治措施的临床证据链， 建立基于中国人群证据的糖尿病防治指南—— 纪念第 1 版《中国 2 型糖尿病防治指南》发布 10 周年

纪立农

Develop Chinese diabetes guidelines from clinical evidence in China——Marking the tenth anniversary of the first edition of Chinese diabetes guidelines for type 2 diabetes *Ji Li-nong, Department of Endocrinology, Peking University People's Hospital, Beijing 100044, China*

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2013 版《中国 2 型糖尿病防治指南(征求意见稿)》(下称“指南”)已公布。新版指南公布距离我国第 1 版《2 型糖尿病防治指南》发布整整 10 年。

2003 年,中华医学会糖尿病学分会在中国糖尿病杂志名誉主编,时任中华医学会糖尿病学分会主任委员钱荣立教授的领导下制定了第 1 版《中国 2 型糖尿病防治指南》。该指南的出台结束了像中国这样的“糖尿病大国”依靠国际上的指南来指导中国糖尿病防治的历史,并为中国的糖尿病防治提供了临床证据。限于当时中国糖尿病临床研究基础仍较薄弱,2003 版指南所依据的临床证据主要来自于非中国人群。指南从体例上更接近教科书,并借鉴了国际糖尿病联盟西太平洋地区糖尿病指南“2 型糖尿病实用目标和治疗”和国际上其他糖尿病指南中的部分内容。2007、2010 及 2013 年对指南进行修订时更注重系统的收集在中国人群中产生的临床证据并使指南的体例更符合临床指南要求,即主要以基于临床证据的建议作为指南主体并辅以对证据的概括性总结。

随着我国糖尿病临床研究的广泛开展,在中国人群中产生的临床证据不仅限于描述中国糖尿病和并发症流行病学现况、疾病的控制现况和经济负担的临床研究的证据^[1-12]。越来越多的证据^[13-23]来自于基于中国普通人群的糖尿病和相关疾病的预测;

多中心、前瞻性、随机分组对照的生活方式干预研究^[24-25]和临床药物研究^[26-33];基于科学假设的前瞻性、多中心、平行对照药物临床研究^[54]以及对在中国 2 型糖尿病人群和包括中国 2 型糖尿病患者在内的亚洲人群中所开展的随机分组临床试验的 Meta 分析^[55-57]。研究目标也从单纯评价药物降糖疗效和安全性扩展到评价药物对心血管疾病结局的影响^[29]。但与在国外人群中开展的临床研究相比,降糖药物治疗在中国的临床证据仍十分匮乏(如影响血糖的因素众多,当前在国际上公认的评价药物降糖疗效的最客观方法是通过安慰剂对照的随机分组对照研究来客观评价降糖药物疗效。但迄今为止尚缺乏高质量的,在我国广泛使用的双胍类药物、磺脲类药物、 α -糖苷酶抑制剂、格列奈类药物和吡格列酮的针对安慰剂对照的临床证据)。从严格的循证医学证据角度来讲,我们尚不知上述药物在中国 2 型糖尿病患者中的降糖效果是否强于安慰剂。因此,分别以在中国人群中降糖幅度不明的磺脲类药物和 α -糖苷酶抑制剂作为参照药物在中国 2 型糖尿病患者中所评价的胰升血糖素样肽-1(GLP-1)受体激动剂利拉鲁肽^[53]和二肽基肽酶-4(DPP-4)抑制剂维格列汀单药治疗^[37]所得到的、与上述参照药物非劣效的临床试验结果仍使利拉鲁肽和维格列汀单药治疗的降糖疗效处于“未知状态”。

可喜的是,新近在我国上市的一些新型降糖药物,如西格列汀(单药和联合治疗)^[34-35]、维格列汀(联合治疗)^[36]沙格列汀(单药和联合治疗)^[38-39]、安

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格列汀(联合治疗)^[40]、艾塞那肽(联合治疗)^[52]已在中国 2 型糖尿病患者中完成了与安慰剂对照的多中心、前瞻性随机分组的临床研究,获得了明确疗效的临床证据,为临床医生选择用药提供了重要的参考依据。

传统医学手段在当前中国糖尿病的治疗中占有非常大的比重。尽管我国是一个中医、中药大国,但迄今为止,仅有数个研究采用多中心、前瞻性、随机分组、双盲、安慰剂对照的方法评价了中药或中药中的主要成分在治疗和预防糖尿病的作用^[27,41-43]。

胰岛素类似物已在中国糖尿病患者中得到比较广泛的使用。但其价格昂贵,所以在中国人群中是否比人胰岛素提供更多的临床益处则需要临床证据的支持。目前,仅有甘精胰岛素(Glargin)与的基础胰岛素——中效人胰岛素(NPH)^[45]及速效胰岛素——赖脯胰岛素(Lispro)预混制剂^[46-47]与人胰岛素预混制剂之间的多中心、随机分组、前瞻性对照研究的临床证据,尚缺乏在中国糖尿病患者中速效胰岛素赖脯胰岛素(Lispro)与常规人胰岛素,胰岛素类似物地特胰岛素(Detemir)与中效人胰岛素(NPH)及速效胰岛素门冬胰岛素(Aspart)及其预混制剂与人常规胰岛素及其预混制剂之间的多中心、随机分组、前瞻性对照研究的临床证据。少数研究采用了多中心、随机分组、前瞻性对照研究的方法对照了不同的胰岛素类似物治疗方案间的疗效与安全性^[48-49]。

当前,我国仍缺乏中国人群中与糖尿病最直接的糖尿病急性并发症、糖尿病微血管并发症的疾病自然病程和治疗策略的临床证据。

2 型糖尿病是一种或多种心血管疾病危险聚集而以心血管疾病为主要结局的疾病。目前,根据国际上的循证医学证据,用于降低胆固醇的他汀药物、抗血小板聚集的药物及降压药物已与降糖药物一同成为糖尿病的标准治疗措施。迄今为止,尚没有直接来自我国糖尿病人群中上述药物长期安全性和有效性的临床证据。最近,美国 AHA 公布了根据美国人群的循证医学证据所制定的美国成人胆固醇控制策略^[58]后曾一度引起国内学界的一片喧嚣,但缺乏中国人群的证据使得这场喧嚣变成了苍白无力且无济于中国心血管病防治的夸夸其谈。

我们也非常高兴的发现,在最近几版的指南中,与糖尿病相关的重要临床问题,如儿童和青少年糖

尿病,妊娠期糖尿病或糖尿病合并妊娠、抑郁、手术治疗糖尿病,糖尿病外周血管病变,低血糖,糖尿病教育,血糖监测,围手术期管理、感染,阻塞性睡眠呼吸暂停及口腔疾病得到高度的重视。但与上述问题相关的临床证据来源仅限于临床流行病学和观察性研究。绝大多数与诊治策略相关的临床证据来自非中国人群的研究结果,仅少数来自国内的初步研究^[50,59-62]。

目前,中国是全球的糖尿病大国。根据国际糖尿病联盟估计,中国 2013 年糖尿病患者人数为 9840 万,居世界各国糖尿病患者人数的首位。到 2035 年,中国糖尿病患者人数将达 1.43 亿,仍居全球首位。虽然目前有限的临床证据并不支持疾病的防治策略和防治手段,但因遗传背景、生活习惯、文化差异和医疗环境等诸多因素所带来的疾病防治手段在不同人种间和不同环境居住中的人群间效果差异存在的可能性仍存在。对占世界近四分之一的中国糖尿病人群防治不能一直依靠来自其他人群的临床证据。

古人云,“十年磨一剑”,欲使指南成为在我国与糖尿病抗争中“削铁如泥”的利剑,我们不但要光其表面,更重要的是炼其材质。

今后,我国不但要加紧补课,将中国 2 型糖尿病防治的证据链中相对于其他人群缺失的环节逐渐补充进来,且要根据中国糖尿病防治中未被满足的需求有的放矢的建立新的临床证据。只有建立在充足的来自中国人群临床证据的糖尿病防治指南,才能更好地指导中国糖尿病防治的临床实践并逐渐使中国从临床证据的进口国成为临床证据的出口国,担负起参与和领导全球糖尿病防治的“大国”重任。

参 考 文 献

- [1] 全国糖尿病研究协作组. 中国 14 省市 30 万人糖尿病流行病学调查. 中华内科杂志, 1981, 20: 678-683.
- [2] Pan XR, Yang WY, Li GW, et al. Prevalence of diabetes and its risk factors in China, 1994. Diabetes Care, 1997, 20: 1664-1669.
- [3] 李立明, 饶克勤, 孔灵芝, 等. 中国居民 2002 年营养与健康状况调查. 中华流行病学志, 2005, 26: 478-484.
- [4] Yang WY, Lu JM, Weng JP, et al. Prevalence of Diabetes among Men and Women in China. N Engl J Med, 2010, 362: 1090-1101.
- [5] Xu Y, Wang L, He J, et al. Prevalence and control of diabetes in Chinese adults. JAMA, 2013, 310: 948-959.
- [6] Ji L, Hu D, Pan C, et al. CCMR Advisory Board and CCMR-3B

- STUDY Investigators. Primacy of the 3B Approach to Control Risk Factors for Cardiovascular Disease in Type 2 Diabetes Patients. *Am J Med*, 2013, 126: e11-e22.
- [7] 杨兆军, 单忠艳, 田浩明, 等. 中国四省市阿司匹林预防心血管疾病用药现状调查. *中华糖尿病杂志*, 2011, 3: 22-26.
- [8] Ji LN, Lu JM, Guo XH, et al. Glycemic control among patients in China with type 2 diabetes mellitus receiving oral drugs or injectables. *BMC Public Health*, 2013, 13: 602-609.
- [9] Bi Y, Yan J, Tang W, Yang J, et al. Prevalence of hypoglycemia identified by intensive bedside glucose monitoring among hospitalized patients with diabetes mellitus. *J Diabetes*, 2013, 5: 300-301.
- [10] Yang X, Hsu-Hage B, Zhang H, et al. Gestational diabetes mellitus in women of single gravidity in Tianjin City, China. *Diabetes Care*, 2002, 25: 847-851.
- [11] Yang W, Zhao W, Xiao J. Medical care and payment for diabetes in China: enormous threat and great opportunity. *PLoS One*, 2012, 7: e39513.
- [12] 王爱红, 许樟荣, 纪立农. 中国城市医院糖尿病截肢的临床特点及医疗费用分析. *中华医学杂志*, 2012, 92: 224-227.
- [13] Yang H, Wei Y, Gao X, et al. Risk factors for gestational diabetes mellitus in Chinese women: a prospective study of 16286 pregnant women in China. *Diabet Med*, 2009, 26: 1099-1104.
- [14] Guan H, Li YJ, Xu ZR, et al. Prevalence and risk factors of peripheral arterial disease in diabetic patients over 50 years old in China. *Chin Med Sci J*, 2007, 22: 83-88.
- [15] 王椿, 余婷婷, 王艳, 等. 糖尿病患者下肢动脉病变筛查及危险因素分析. *中国糖尿病杂志*, 2007, 15: 643-646.
- [16] Li X, Wang YZ, Yang XP, et al. Prevalence of and risk factors for abnormal ankle-brachial index in patients with type 2 diabetes. *J Diabetes*, 2012, 4: 140-146.
- [17] Jiang Y, Huang S, Fu X, et al. Epidemiology of chronic cutaneous wounds in China. *Wound Rep Reg*, 2011, 19: 181-188.
- [18] Xu Y, Bi Y, Ning G, et al. Significant coronary stenosis in asymptomatic Chinese with different glycemic status. *Diabetes Care*, 2013, 36: 1687-1694.
- [19] Jia WP, Lu JX, Xiang KS, et al. Prediction of abdominal visceral obesity from body mass index, waist circumference and waist-hip ratio in Chinese adults: receiver operating characteristic curves analysis. *Biomed Environ Sci*, 2003, 16: 206-211.
- [20] Bao Y, Lu J, Wang C, et al. Optimal waist circumference cutoffs for abdominal obesity in Chinese. *Atherosclerosis*, 2008, 201: 378-384.
- [21] Ye Y, Bao Y, Hou X, et al. Identification of waist circumference cutoffs for abdominal obesity in the Chinese population: a 7. 8-year follow-up study in the Shanghai urban area. *Int J Obes (Lond)*, 2009, 33: 1058-1062.
- [22] Wang C, Hou X, Bao Y, et al. The metabolic syndrome increased risk of cardiovascular events in Chinese—a community based study. *Int J Cardiol*, 2010, 139: 159-165.
- [23] Zhou X, Qiao Q, Ji L, et al. A non-laboratory based risk assessment algorithm for undiagnosed type 2 diabetes developed on a nationwide diabetes survey. *Diabetes Care*, 2013, 36: 3944-3952.
- [24] Li G, Zhang P, Wang J, et al. The long-term effect of lifestyle interventions to prevent diabetes in the China Da Qing Diabetes Prevention Study: a 20-year follow-up study. *Lancet*, 2008, 371: 1783-1789.
- [25] Pan XR, Li GW, Hu YH, et al. Effects of diet and exercise in preventing NIDDM in people with impaired glucose tolerance. The Da Qing IGT and Diabetes Study. *Diabetes Care*, 1997, 20: 537-544.
- [26] Weng J, Li Y, Xu W, et al. Effect of intensive insulin therapy on beta-cell function and glycaemic control in patients with newly diagnosed type 2 diabetes: a multicentre randomised parallel-group trial. *Lancet*, 2008, 24: 371: 1753-1760.
- [27] Ji L, Tong X, Wang H, et al. Efficacy and safety of traditional Chinese medicine for diabetes: a double-blind, randomised, controlled trial. *PLoS One*, 2013, 8: e56703.
- [28] Zhu XX, Pan CY, Li GW, et al. Addition of rosiglitazone to existing sulfonylurea treatment in Chinese patients with type 2 diabetes and exposure to hepatitis B or C. *Diabetes Technol Ther*, 2003, 5: 33-42.
- [29] Wang W, Bu R, Su Q, et al. Randomized study of repaglinide alone and in combination with metformin in Chinese subjects with type 2 diabetes naive to oral antidiabetes therapy. *Expert Opin Pharmacother*, 2011, 12: 2791-2799.
- [30] Hong J, Zhang Y, Lai S, et al. Effects of metformin versus glipizide on cardiovascular outcomes in patients with type 2 diabetes and coronary artery disease. *Diabetes care*, 2013, 36: 1304-1311.
- [31] 潘长玉, 姬秋和, 杨文英, 等. 2 型糖尿病患者维格列汀与阿卡波糖单药治疗的比较研究——24 周多中心、随机、双盲、双模拟、阳性对照试验. *中华内分泌代谢杂志*, 2009, 25: 3860-3890.
- [32] Yang WY. Acarbose compared with metformin as initial therapy inpatients with newly diagnosed type 2 diabetes: an open-label, non-inferiority randomized trial. *The Lancet Diabetes & Endocrinology*, 2014, 2: 46-55.
- [33] Li L, Yang M, Li Z, et al. Efficacy and safety of mitglinide versus nateglinide in newly diagnose patients with type 2 diabetes mellitus: a randomized double blind trial. *Diabetes Obes Metab*, 2012, 14: 187-189.
- [34] Mohan V, Yang W, Son HY, et al. Efficacy and safety of sitagliptin in the treatment of patients with type 2 diabetes in China, India, and Korea. *Diabetes Res Clin Pract*, 2009, 183: 106-116.
- [35] Yang W, Guan Y, Shentu Y. The addition of sitagliptin to ongoing metformin therapy significantly improves glycemic control in Chinese patients with type 2 diabetes. *J Diabetes*, 2012, 4: 227-237.
- [36] Pan C, Xing X, Han P, et al. Efficacy and tolerability of vildagliptin as add-on therapy to metformin in Chinese patients with type 2 diabetes mellitus. *Diabetes Obes Metab*, 2012, 14: 737-744.
- [37] Pan C, Yang W, Barona JP, et al. Comparison of vildagliptin and acarbose monotherapy in patients with Type 2 diabetes: a 24-

- week, double-blind, randomized trial. *Diabet Med*, 2008, 25: 435-441.
- [38] Pan CY, Yang W, Tou C, et al. Efficacy and safety of saxagliptin in drug-naïve Asian patients with type 2 diabetes mellitus: a randomized controlled trial. *Diabetes Metab Res Rev*, 2012, 28: 268-275.
- [39] Yang W, Pan CY, Tou C, et al. Efficacy and safety of saxagliptin added to metformin in Asian people with type 2 diabetes mellitus: a randomized controlled trial. *Diabetes Res Clin Pract*, 2011, 94: 217-224.
- [40] Zeng Z, Yang JK, Tong N, et al. Efficacy and safety of linagliptin added to metformin and sulphonylurea in Chinese patients with type 2 diabetes: a sub-analysis of data from a randomised clinical trial. *Curr Med Res Opin*, 2013, 29: 921-929.
- [41] Zhang Y, Li X, Zou D, et al. Treatment of type 2 diabetes and dyslipidemia with the natural plant alkaloid berberine. *J Clin Endocrinol Metab*, 2008, 93: 2559-2565.
- [42] Lian FM, Li GW, Chen XY, et al. Chinese herbal medicine tianqi reduces progression from impaired glucose tolerance to diabetes: a double-blind, randomized, placebo-controlled, multicenter trial. *J Clin Endocrinol Metab*, 2013, 99: 3276.
- [43] Tong XL, Wu ST, Lian FM, et al. The safety and effectiveness of TM81, a Chinese herbal medicine, in the treatment of type 2 diabetes: a randomized double-blind placebo-controlled trial. *Diabetes Obes Metab*, 2013, 15: 448-454.
- [44] 杨文英, 冉兴无, 刘超, 等. 谷赖胰岛素或赖脯胰岛素联合甘精胰岛素对糖尿病的有效性 & 安全性. *中华糖尿病杂志*, 2012, 4: 28-32.
- [45] Pan CY, Sinnassamy P, Chung KD, et al. Insulin glargine versus NPH insulin therapy in Asian Type 2 diabetes patients. *Diabetes Res Clin Pract*, 2007, 76: 111-118.
- [46] Li Y, Li Q, Li CJ, et al. Comparison of HbA1c in Chinese patients with type 1 or type 2 diabetes randomized to twice daily insulin lispro low mix 25 or twice daily human insulin mix 30/70. *Chin Med J (Engl)*, 2009, 122: 2540-2546.
- [47] Gao Y, Li G, Li Y, Guo X, et al. Postprandial blood glucose response to a standard test meal in insulin-requiring patients with diabetes treated with insulin lispro mix 50 or human insulin mix 50. *Int J Clin Pract*, 2008, 62: 1344-1351.
- [48] Bowering K, Reed VA, Felicio JS, et al. A study comparing insulin lispro mix 25 with glargine plus lispro therapy in patients with Type 2 diabetes who have inadequate glycaemic control on oral anti-hyperglycaemic medication: results of the PARADIGM study. *Diabet Med*, 2012, 29: e263-e272.
- [49] Yang W, Xu X, Liu X, et al. Treat-to-target comparison between once daily biphasic insulin aspart 30 and insulin glargine in Chinese and Japanese insulin-naïve subjects with type 2 diabetes. *Curr Med Res Opin*, 2013, 29: 1599-1608.
- [50] Guo XH, Ji LN, Lu JM, et al. Efficacy of structured education in patients with type 2 diabetes mellitus receiving insulin treatment. *J Diabetes*, 2013, 23: 178-181.
- [51] Ji L, Onishi Y, Woo C, et al. Efficacy and safety of exenatide once-weekly vs exenatide twice-daily in Asian patients with type 2 diabetes mellitus. *Journal of Diabetes Investigation*, 2013, 4: 53-61.
- [52] Gao Y, Yoon KH, Chuang LM, et al. Efficacy and safety of exenatide in patients of Asian descent with type 2 diabetes inadequately controlled with metformin or metformin and a sulphonylurea. *Diabetes Res Clin Pract*, 2009, 83: 69-76.
- [53] Yang W, Chen L, Ji Q, et al. Liraglutide provides similar glycaemic control as glimepiride (both in combination with metformin) and reduces body weight and systolic blood pressure in Asian population with type 2 diabetes from China, South Korea and India: a 16-week, randomized, double-blind, active control trial. *Diabetes Obes Metab*, 2011, 13: 81-88.
- [54] Ji L, Li H, Guo X, et al. Impact of baseline BMI on glycemic control and weight change with metformin monotherapy in Chinese type 2 diabetes patients: phase IV open-label trial. *PLoS One*, 2013, 8: e57222.
- [55] Cai X, Han X, Luo Y, Ji L. Comparisons of the Efficacy of Alpha Glucosidase Inhibitors on Type 2 Diabetes Patients between Asian and Caucasian. *PLoS One*, 2013, 8: e79421.
- [56] 蔡晓凌, 周灵丽, 罗樱樱, 等. 瑞格列奈在中国 2 型糖尿病患者中疗效及安全性的荟萃分析. *中国糖尿病杂志*, 2013, 21: 907-912.
- [57] 蔡晓凌, 罗樱樱, 韩学尧, 等. 那格列奈在亚洲 2 型糖尿病患者中疗效及安全性的荟萃分析. *中国糖尿病杂志*, 2013, 21: 913-917.
- [58] Stone NJ, Robinson J, Lichtenstein AH, et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation*, 2013, 127: 735-737.
- [59] 畅坚, 许樟荣, 王志强, 等. 糖尿病与非糖尿病患者外周动脉病变血管造影对比研究. *中华糖尿病杂志*, 2004, 12: 324-327.
- [60] 王椿, 余婷婷, 王艳, 等. 糖尿病患者下肢动脉病变筛查及危险因素分析. *中国糖尿病杂志*, 2007, 15: 643-646.
- [61] 郭立新, 赵心, 潘琦, 等. 持续气道正压通气治疗 2 型糖尿病合并阻塞性睡眠呼吸暂停低通气综合征对患者内分泌功能的影响研究. *中国实用内科杂志*, 2012, 5: 435-437.
- [62] 刘然, 陆菊明, 刘剑锋, 等. 阻塞性睡眠呼吸暂停综合征对 2 型糖尿病患者血糖控制及相关并发症的影响. *解放军医学杂志*, 2012, 37: 1130-1134.

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