

- [13] Morreale M, Mulè G, Ferrante A, et al. Early vascular aging in normotensive patients with systemic lupus erythematosus: comparison with young patients having hypertension[J]. *Angiology*, 2016, 67(7): 676-682.
- [14] Bruce IN, Gladman DD, Urowitz MB. Premature atherosclerosis in systemic lupus erythematosus[J]. *Rheum Dis Clin North Am*, 2000, 26(2): 257-278.
- [15] Karrar A, Sequeira W, Block JA. Coronary artery disease in systemic lupus erythematosus: a review of the literature[J]. *Semin Arthritis Rheum*, 2001, 30(6): 436-443.
- [16] Urowitz MB, Ibañez D, Su J, et al. Modified Framingham Risk Factor Score for systemic lupus erythematosus[J]. *J Rheumatol*, 2016, 43(5): 875-879.
- [17] Chung CP, Oeser A, Avalos I, et al. Cardiovascular risk scores and the presence of subclinical coronary artery atherosclerosis in women with systemic lupus erythematosus[J]. *Lupus*, 2006, 15(9): 562-569.
- [18] 汪汉, 蔡琳. 类风湿关节炎血脂特征及其管理[J]. *心血管病学进展*, 2013, 34(4): 503-508.
- [19] Tselios K, Koumaras C, Gladman DD, et al. Dyslipidemia in systemic lupus erythematosus: just another comorbidity? [J]. *Semin Arthritis Rheum*, 2016, 45(5): 604-610.
- [20] Skaggs BJ, Hahn BH, McMahon M. Accelerated atherosclerosis in patients with SLE—Mechanisms and management[J]. *Nat Rev Rheumatol*, 2012, 8(4): 214-223.
- [21] Juárez-Rojas JG, Medina-Urrutia AX, Jorge-Galarza E, et al. Pioglitazone improves the cardiovascular profile in patients with uncomplicated systemic lupus erythematosus: a double-blind randomized clinical trial[J]. *Lupus*, 2012, 21(1): 27-35.
- [22] Huo Y, Li J, Qin X, et al. Efficacy of folic acid therapy in primary prevention of stroke among adults with hypertension in China: the CSPPT randomized clinical trial[J]. *JAMA*, 2015, 313(13): 1325-1335.
- [23] 张翠, 蔡琳, 汪汉. 结缔组织病与心力衰竭[J]. *心血管病学进展*, 2018, 39(4): 677-681.
- [24] Saziyana S, Mohd Shahrir MS, Kong CT, et al. Implications of immunosuppressive agents in cardiovascular risks and carotid intima media thickness among lupus nephritis patients[J]. *Lupus*, 2011, 20(12): 1260-1266.
- [25] Ridker PM, Hennekens CH, Buring JE, et al. C-reactive protein and other markers of inflammation in the prediction of cardiovascular disease in women[J]. *N Engl J Med*, 2000, 342(12): 836-843.
- [26] Hulley S, Grady D, Bush T, et al. Randomized trial of estrogen plus progestin for secondary prevention of coronary heart disease in postmenopausal women. Heart and Estrogen/progestin Replacement Study (HERS) Research Group [J]. *JAMA*, 1998, 280(7): 605-613.
- [27] Yang DH, Leong PY, Sia SK, et al. Long-term hydroxychloroquine therapy and risk of coronary artery disease in patients with systemic lupus erythematosus[J]. *J Clin Med*, 2019, 8(6): pii: E796.
- [28] Schreiber K, Breen K, Parmar K, et al. The effect of hydroxychloroquine on haemostasis, complement, inflammation and angiogenesis in patients with antiphospholipid antibodies[J]. *Rheumatology (Oxford)*, 2018, 57(1): 120-124.
- [29] Bessant R, Duncan R, Ambler G, et al. Prevalence of conventional and lupus-specific risk factors for cardiovascular disease in patients with systemic lupus erythematosus: a case-control study[J]. *Arthritis Rheum*, 2006, 55(6): 892-899.
- [30] Ura M, Sakata R, Nakayama Y, et al. Coronary artery bypass grafting in patients with systemic lupus erythematosus[J]. *Eur J Cardiothorac Surg*, 1999, 15(5): 697-701.

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文 摘

001 太阳紫外线照射会降低血压吗? [Weller RB, Wang YD, Franklin W, et al. *J Am Heart Assoc*, 2020, 9:e013837(英文)]

高血压仍是全球导致过早死亡和心脑血管疾病的重要原因。流行病学和临床研究已证实:降低血压可降低心血管风险和死亡率,尤其是心肌梗死和卒中。血压与纬度相关,且有季节性,夏天的血压比冬天低,仅仅是由于温度引起的吗? 太阳紫外线照射能降低血压吗?

在 2011 年 1 月—2013 年 12 月作者对 2 178 家美国透析中心的 342 457 例血液透析患者进行了为期 3 年的队列研究。患者每周进行 3 次透析,在每次透析前,使用自动血压测量仪测量坐位血压,采用收缩压的月平均值作为反应变量。患者的性别、年龄、导管使用、每月平均体重指数、透析间期体重增加、白蛋白、促红细胞生成素使用、血红蛋白、血清钠和钾以及高血压诊断作为协变量。为了准确调整临床协变量和环境温度,将 2 178 个设施根据邮政编码划分为 1 530 个地理位置代码。根据美国国家大气研究中心的大量数据,计算每个位置每小时的光谱辐照度 (W/m^2),每小时的紫外线 A 波和紫外线 B 波作为光谱辐照度的总和(波长范围分别为 321 ~ 400 nm 和 280 ~

320 nm)。每小时紫外线 A 波和紫外线 B 波的总和以估计总暴露量和平均值。

结果发现收缩压有明显的季节变化,温度、紫外线 A 波和紫外线 B 波也都表现出季节变化,而且这三个指标都与收缩压线性负相关。用温度矫正后,收缩压与紫外线 A 波间依然是负相关。因此,本研究首次表明透析前的收缩压受太阳紫外线照射影响,且独立于环境温度。表明了太阳紫外线照射与低收缩压相关,人体暴露在紫外线下有助于血压调节,也表明收缩压的变化与季节和地理有一定联系。作者认为阳光照射可降低血压,不充分地暴露于自然紫外线或积极避免阳光照射可能是高血压的新危险因素,并建议在之后的心血管流行病学研究中纳入紫外线照射措施。

研究局限性包括缺乏个人的紫外线暴露量、血压监测设备存在差异、缺乏抗高血压治疗的数据、忽略舒张压、缺乏透析治疗之间的血压以及患者的社会经济状况和身体活动水平。

四川大学生物治疗国家重点实验室 秦雪 摘译 杨莉 审核

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