Asian Case Reports in Vascular Medicine 亚洲心脑血管病例研究, 2012, 1, 10-14
http://dx.doi.org/10.12677/acrvm.2012.11003 Published Online November 2012 (http://www.hanspub.org/journal/acrvm.html)

The Effect of Attentional Bias Modification on the Cardiovascular Stress Reactivity*

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Received: Sep. 19th, 2012; revised: Sep. 24th, 2012; accepted: Sep. 29th, 2012

Abstract: Although with worldwide progress of modern medicine, there have been a lot of the centralized and deep researches about precipitating factors of cardiovascular disease, data published by WHO shows the morbidity rate of cardiovascular disease in the global scope has increased, so this highlights that under the background of the whole development of modern medicine, it is necessary to employ the physiological-psychological-social medical model to find a new method to break through traditional biochemical monitoring index, which can prevent, identify and intervene the individual who will develop into the risk of cardiovascular disease before the organic disease formed. Previous researches have suggested that, in the face of the pressure source, individual system will react to it, which is called cardiovascular stress reactivity, and this kind of long-term, inappropriate physiology reaction can eventually lead to organic lesion, namely the generation of cardiovascular disease. This paper is to utilize literature review to explore the following subjects in two dimensions of theory and practice: correct individual attention bias to change the cognitive process of negative information (such as the pressure source), so as to reduce the cardiovascular stress reactivity produced by individual when facing pressure, eventually to reduce improper physiology reaction and the risk of developing into cardiovascular disease.

Keywords: Attentional Bias; Attentional Bias Modification; Cardiovascular Stress Reactivity

注意偏向修正对心血管应激反应的影响*

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收稿日期：2012 年 9 月 19 日；修回日期：2012 年 9 月 24 日；录用日期：2012 年 9 月 29 日

摘　要：尽管随着世界范围内现代医学的进步，对心血管疾病的诱发因素进行了大量、集中、深入的研究，但据 WHO 公布的数据说明心血管疾病的患病率在全球范围还是不断增高，因此这突出表明在整体医学不断发展的背景下，有必要采用生理－心理－社会医学模式来发现突破传统生化指标监测的新方法，在器质性疾病形成以前，起到预防、识别和干预有发展成心血管疾病风险的个人。以往研究表明，个体在面对压力源时，心血管会对压力产生相应反应，被称为心血管应激反应性，而这种长期的、不恰当的生理反应会最终导致器质性病变，即心血管疾病的产生。因此本文通过文献回顾，提出可在理论与实践两个维度进行探究的新命题：通过对个体注意偏向的修正改变其对负面信息(如压力源)的认知加工过程，从而降低个体在面对压力时产生的心血管应激反应性，最终达到减轻不恰当生理反应，降低发展成心血管疾病风险的目的。

关键词：注意偏向；注意偏向修正；心血管应激反应

*基金项目：本文受教育部哲学社会科学研究重大课题攻关项目(批准文号：10JZD0005)资助。

1. 引言

世界卫生组织于近日公布了心血管疾病(Cardiovascular Disease, CVD)最新研究结果，截至 2011 年 9 月，心血管疾病仍然是全球范围内造成死亡的最主要原因，即与其它任何原因相比，心血管疾病每年造成的死亡数最多、死亡率最高。仅在 2008 年，估计有 17.3 万人死于心血管疾病，占全球所有死亡人数的 30%，预计到 2030 年，这一数字将增长到 23.6 万。

目前，全世界对心血管疾病的危险因素研究集中在生化指标领域，主要有：胰岛素抵抗(Insulin Resistance)[1-5]、炎症(Inflammation)[6-8]、生理止血(Hemostasis)[9-11]、心脏自主神经功能(Cardiac Autonomic Control)[12-16]、抑郁症(Depression)[17-20]、高血压(Hypertension)[21-24]、血脂异常(Dyslipidemia)[25-28]和肥胖(Obesity) [29-31]等。

从上述研究结果及世界卫生组织公布的预测数据来看，尽管全世界在控制心血管疾病的危险因素方面取得了长足进步，但心血管疾病的患病率在全球范围还是不断增高。这突出表明需要有突破传统生化指标监测的新方法，在器质性疾病形成以前，起到预防、识别和治疗有发展成心血管疾病风险的个人。

2. 研究现状及其价值

2.1. 个体心理层面

部分研究者将视线转向了个体心理层面，A 型人格(Type A)[32]和 D 型人格(Type D)[33-36]被认为与心血管疾病的发病率有极高的相关性，但人格属于比较稳定的心理特质，短时间内不会被轻易改变，因此一般情况下只能起到识别心血管疾病发病高危人群的作用。

2.2. 认知层面

于是近十年来，不少学者开始从认知取向角度来探讨导致心血管疾病的因素。心理压力和情感压力所引起的心血管反应性(Cardiovascular Reactivity)被认为是“注意和认知领域”增加心血管患病风险的最主要潜在因素[37]。经常性暴露于压力源下，并产生过分夸张的或不恰当的反应性倾向会在心血管疾病重要的调控系统(Regulatory Systems)中产生外显的变化(Allostatic Changes)，如血压调节、脂质和胰岛素代谢、炎症及生理止血等，这种长期的、不恰当的生理反应会最终导致器质性病变，即心血管疾病的产生。在面对压力源时，心血管对压力所产生的反应性被称为心血管应激反应性(Cardiovascular Stress Reactivity)，一般来说，以测量接受刺激(可以是生理刺激，也可以是引起心理压力的心理任务)前后心率(Heart Rate，HR)、收缩压(Systolic Blood Pressure，SBP)和舒张压(Diastolic Blood Pressure，DBP)之间的差异表示。

然而，面对同一种压力源时，不同的人会有不同的反应，其原因在于个体在加工信息时具有不同的认知偏向(包括注意偏向、记忆偏向、解释偏向等)，其在绝大多数时候都不利于人们更好的认识与解决问题、适应环境，例如对负性情绪刺激的选择性注意与焦虑易感性提升相关[38-40]。在面对“压力源”进行认知加工的一系列过程中，注意无疑是最先出现的阶段，更有研究者发现焦虑障碍、情感障碍、摄食障碍、物质成瘾、暴力攻击、慢性疼痛等患者对威胁信息的注意分配与常人不同：相对于中性刺激，他们会更快、更早对相应威胁或相关刺激表现出不同的注意分配，即注意偏向(Attentional Bias)，甚至先于意识[41-43]。进一步的研究表明，注意偏向不仅仅是一些心理疾病所伴随的现象或症状，而且是心理疾病产生、维持和复发的原因[44-46]。对这一命题一致共识进行逻辑演绎，我们认为：可以通过对个体注意偏向的修正改变其对负面信息(如压力源)的认知加工过程，从而降低个体在面对压力时产生的心血管应激反应性，最终达到减轻不恰当生理反应，降低发展成心血管疾病风险的目的。

2.3. 注意偏向修正的应用价值

近年来，在西方临床治疗领域，已有不少研究者在进行注意偏向修正(Attentional Bias Modification，ABM)的研究与实践[47]。这种修正程序源于焦虑症中与威胁有关注意偏向的研究，以基于计算机的注意培训教程内隐地改变焦虑症患者的有偏注意模式(Biased Attentional Patterns)。目前运用得比较多且成熟的修正程序有两种，改版的点/视觉探测任务和改版的视觉搜索任务，而对注意偏向修正的效果评估可以采用各种评估注意偏向的实验范式，如改版的 Stroop 任务、点/视觉探测任务、空间提示任务等，这些任务用不同的指标来评估注意偏向的改变[48]，其原理图如

图 1 所示(引用自 Yair Bar-Haim，2010 一文)：

但值得注意的是，虽然很多研究表明注意偏向修正对低自尊、焦虑障碍、抑郁障碍、物质成瘾等具有良好的干预效果，但其与心血管应激反应性这一领域的研究，国内外尚未开展，再加上心血管疾病始终是威胁人类生存健康最主要原因的现实境况。因此，在心血管疾病预防领域中对注意偏向修正及注意系统进一步的研究就显得迫切和非常有价值。

具体表现在：

1) 从一种新的角度来探索注意偏向与心血管应激反应性的关系，拓展相关领域的理论与研究方法；

2) 探索注意机制对器质性疾病的预防与治疗功能；

3) 从优化个人医疗服务出发，帮助个体诊断、治疗和预防心血管疾病的发生。

3. 研究方案设想

1) 通过对已有文献的整理与分析，系统回顾近 10 年来注意偏向修正的研究成果，提出注意偏向修正可以从现有研究领域(抑郁、焦虑和物质成瘾)拓展到心血管疾病防治领域的理论假设，成为在心理、精神和身体等更广范围上的治疗工具，并逐渐形成标准的治疗方案；

2) 以 E-prime 软件编制实验室注意任务，采用改版的点/视觉探测任务或改版的视觉搜索任务等实验方法，从行为角度探索负性刺激对个体注意偏向的影响，即通过对一对情绪刺激呈现后在其中一个刺激呈现位置出现的靶刺激进行按键反应来观察注意偏向，如果对负性刺激之后的靶刺激反应时缩短，则说明对负性刺激存在注意偏向；

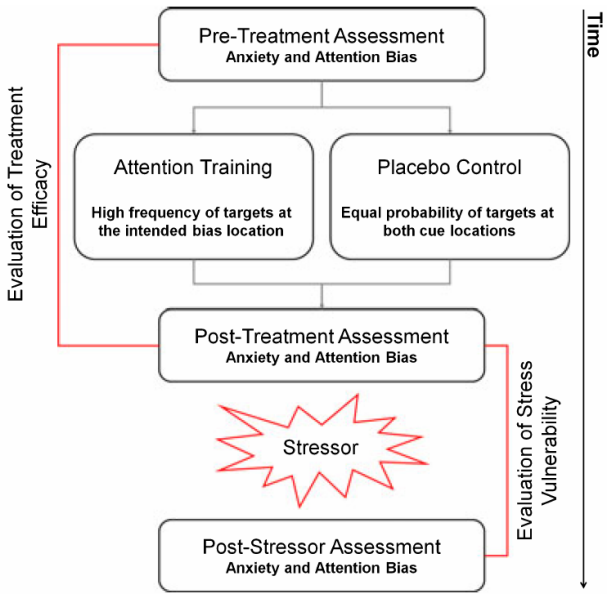

Figure 1. The schematic diagram of attentional bias modification for evaluating the efficacy and stress vulnerability
图 1. 用于评价疗效和压力易损性的注意偏向修正研究原理图

3) 通过问卷调查和统计检验，验证不同注意偏差的个体对知觉到压力大小的影响；

4) 开展干预实验研究(正常群体/心血管疾病高风险群体/心血管疾病患者)，以心率、血压、心电图为指标，在实验室压力情境下，检验各组别通过注意偏向修正程序后心血管应激反应性是否得到一定程度的改善。

5) 在相应的理论假设得到验证后，对相应的结果及实验过程进行梳理，开发注意偏向修正对心血管应激反应性改善的干预介入模式。

本研究可以拓展“注意偏向修正”理论及干预范式的使用范围，将触角延伸至了心血管疾病预防领域，认为个体可以通过注意偏向修正程序改变其对压力的认知加工过程，从而降低个体在面对压力时产生的知觉到压力，而后减轻产生的心血管应激反应性(即心率、血压等)，最终达到减少不恰当生理反应，降低发展成心血管疾病风险的目的。

在理论层面，能够探索注意偏向与心血管应激反应性的关系，拓展相关领域的理论与研究方法；初探注意机制对器质性疾病的预防与治疗功能；在实践领域，能够设计干预研究范式，从优化个人医疗服务出发，帮助个体在日常生活中诊断、治疗和预防心血管疾病的发生。

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