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心血管1.5级预防与“治未病”中药新药研发

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摘要 心血管疾病(cardiovascular disease, CVD)高发构成重大公共卫生挑战. 创新性提出的心血管1.5级预防策略, 聚焦于已出现早期心血管器官损伤但尚未进展至CVD的人群, 旨在填补传统一级与二级预防间的空白, 通过早期筛查与干预延缓或逆转疾病进程, 契合“关口前移”的国家卫生方针. 中医“治未病”理论, 尤以“欲病防微杜渐”理念为核心, 与1.5级预防目标高度一致. 基于此理论研发中药新药, 凭借多靶点、多途径整体调节的优势, 结合现代研究方法, 为精准干预心血管早期器官损害提供了有力工具, 是助力1.5级预防落地的关键. 本文围绕中医“治未病”与心血管1.5级预防的契合点及协同效应展开论述, 旨在推动“治未病”视角下中药新药研发, 促进心血管1.5级预防实践, 为CVD防控提供融合中医智慧的中国方案.

关键词 治未病, 中药新药研发, 心血管1.5级预防, 早期器官损伤, 中西医结合, 策略

心血管疾病(cardiovascular disease, CVD)是全球首要死因, 在我国城乡居民死亡构成比中亦高居首位[1,2]. 面对其高复发率及传统二级预防的局限[3,4], 以及一级预防实施面临的“知易行难”困境[5], 填补心血管疾病预防链条关键空白的需求日益迫切. 为此, 我们创新性地提出“心血管1.5级预防”策略[6], 该策略聚焦于已出现心血管早期器官损伤(如左心室肥厚(left ventricular hypertrophy, LVH)、微量白蛋白尿、动脉僵硬度增加等)但尚未进展至明确CVD诊断的人群, 旨在通过系统性筛查与个性化干预, 延缓或逆转器官损伤进程, 显著降低CVD发生率, 实现真正的“关口前移”.

这一理念与中医“治未病”理论, 尤其是其“欲病防微杜渐”的核心思想高度契合. “治未病”强调在疾病萌芽或潜在阶段进行干预, 追求机体整体功能状态的平衡. 近年来, 基于“治未病”理论的中药新药研发, 在融合现代药理学与循证医学方法的基础上, 凭借中药多靶点、多途径整体调节的独特优势, 展现出精准干预心血管早期器官损伤的巨大潜力, 为心血管1.5级预防策略的落地实施提供了关键的科学工具和干预手段(图1).

1 心血管1.5 级预防与中医“治未病”

1.1 心血管1.5 级预防与中医“治未病”理念的核心相契合

《心脑血管疾病防治行动实施方案(2023—2030

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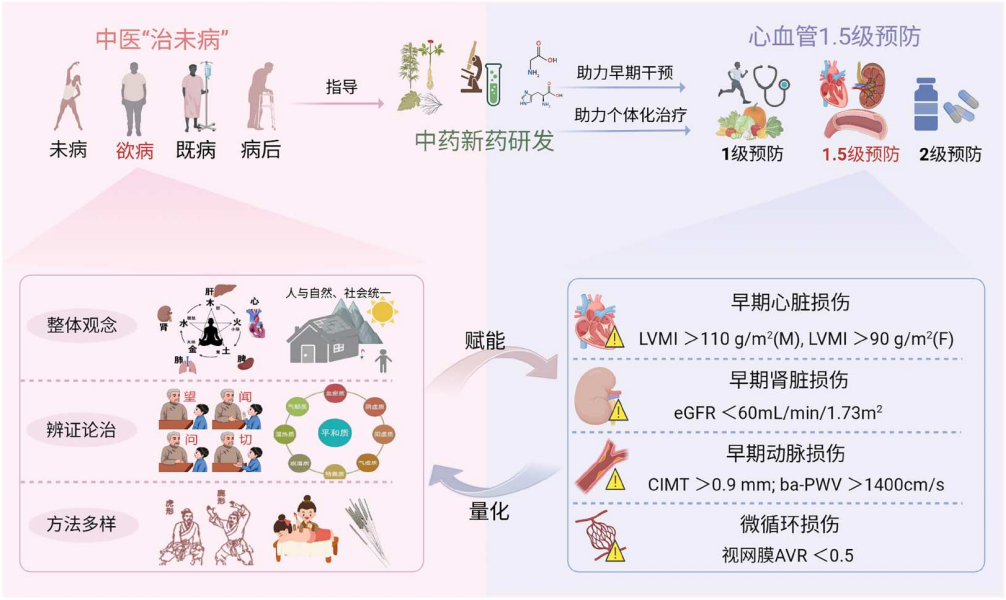

图 1 心血管1.5级预防与"治未病"中药新药研发(由BioRender.com制作)

Figure 1 Development of new traditional chinese medicine for cardiovascular 1.5 level prevention and "preventive treatment of disease" (created with BioRender.com)

年)》明确将"预防为主、中西医并重"作为核心工作方针. 心血管1.5级预防策略的创新性在于其精准定位于一类关键人群: 已出现可检测的早期心血管器官损伤(如LVH、微量白蛋白尿、动脉僵硬度增加等)但尚未达到CVD临床诊断标准的个体. 其核心目标是, 通过系统筛查和早期个性化干预, 延缓甚至逆转器官损伤进程, 从而有效降低CVD发病风险. 中医"治未病"已形成较为完备的理论体系, 是中医药传统理论的重要组成部分, 主要包括3个方面(未病先防、既病防变、瘥后防复), 分为4个层次(未病养生保健、欲病防微杜渐、已病早治防变和病后调摄防复)[7]. 上述的策略理念与中医"治未病"理论中的"欲病防微杜渐"思想高度契合、本质相通. "欲病"状态, 指疾病处于萌芽或初露端倪、尚未完全形成的阶段, 强调在疾病迹象细微显现之时便采取措施, 防止其发展恶化. "欲病防微杜渐"的核心诉求, 正是心血管1.5级预防所追求的在"亚临床损伤期"("欲病")进行有效干预, 阻断其向临床CVD("已病")的转变. 中医的"欲病"状态, 其客观化、可量化的具体表征, 正与1.5级预防所聚焦的"早期心血管器官损伤"指标高度对应. 这种理念层面的深度一致性, 为中西医协同实施心血管1.5级预防奠定了坚实的理论基础.

中医"治未病"的理论精髓与丰富方法, 能够显著赋能和优化心血管1.5级预防的实践: (1) 整体观念拓展干预维度: 1.5级预防侧重于生物标志物筛查和靶向干预. 中医"治未病"的整体观则强调人体是一个有机整体, 并注重人与自然、社会的和谐统一. 这引导我们在风险评估和干预设计中, 不仅关注器官损伤指标, 也需纳入个体的整体功能状态、体质特点、情志因素及生活方式环境等, 从而提供更全面的健康维护方案, 更契合医学维护健康的根本宗旨. (2) 辨证论治提升干预精准性: 西医干预常基于危险因素分层或统一指南. 中医"治未病"的核心方法是辨证论治, 通过望闻问切四诊合参进行体质辨识与证候判定. 这使干预能够高度个体化. 例如, 针对同是颈动脉内膜增厚的早期损伤, 中医可区分血瘀、痰阻或痰瘀互结等不同证型, 分别采用活血、化痰或活血化痰等针对性干预策略(如中药、针灸、特定导引功法), 显著提高早期干预的精准性和有效性. (3) 多样方法丰富干预手段: 中医"治未病"拥有包括个性化药膳茶饮、导引功法(如八段锦、太极拳)、针灸推拿以及中药复方等在内的丰富干预手段. 多项研究已证实, 这些方法在改善早期心血管器官损伤方面具有潜力, 例如改善动脉弹性、调节血脂、缓解心肌肥厚等[8~10]. 这为心血管1.5级预防提供了多样化的、可选择的且部分具有"简便廉验"特点的干预

选项, 尤其适合长期预防性应用.

因此, 将中医“治未病”理论(尤重“欲病防微杜渐”)及其方法体系深度融入心血管1.5级预防策略, 不仅是理念上的自然契合, 更能从评估维度、干预精准性和手段多样性等方面全面优化该策略, 是实现心血管健康关口前移、提升早期干预效果的理想路径.

1.2 心血管1.5 级预防为中医“治未病”量化评估提供科学基石

中医“治未病”虽理念先进, 但其在实践应用和科学研究中面临核心瓶颈: 如何客观界定“欲病”状态? 如何量化评价“治未病”干预的疗效? 传统中医主要通过症状、体征和体质辨识进行判断, 主观性强, 标准模糊, 难以满足现代医学对精准干预和循证评价的要求[11]. 心血管1.5级预防策略的提出, 为解决这一瓶颈提供了关键的量化框架和科学路径.

心血管1.5级预防明确定义了“早期心血管器官损伤”这一亚临床状态及其具体、可测量的生物医学指标. 这些指标包括: (1) 早期心脏损伤: 左心室肥厚(通过心电图/超声心动图检测). (2) 早期肾脏损伤: 微量白蛋白尿的出现, 估算肾小球滤过率(estimated glomerular filtration rate, eGFR)下降. (3) 早期大动脉损伤: 动脉僵硬度增加(如脉搏波传导速度), 早期动脉粥样硬化(如颈动脉内膜中层厚度增厚). (4) 微循环损伤: 微血管功能障碍, 毛细血管稀疏(如眼底镜观察). 这些客观、定量的指标, 为中医“欲病”状态提供了核心的、可标准化的病理生理学内涵和评价标尺. 中医“治未病”理论将疾病分为“未病”“欲病”“已病”和“病后”四层次. “欲病”在中医理论中指疾病处于萌芽、征兆初显但尚未成形的阶段, 常表现为特定的体质偏颇(如气虚、痰湿、血瘀)和潜在的病理生理变化. 心血管1.5级预防所聚焦的“早期器官损伤”, 正是“欲病”状态在现代医学视角下的具体体现和可量化表征. 例如, LVH、微量白蛋白尿或颈动脉内膜中层厚度增厚, 即可视为心系、肾系或脉系“欲病”的客观指征.

基于此对应关系, 心血管1.5级预防有力地推动了“治未病”的定量化和现代化: (1) “欲病”状态的界定得以量化: “欲病”状态不再是纯主观或模糊的描述, 而是可以(部分)通过上述早期器官损伤指标进行客观识别和量化界定. 例如, 符合特定心血管1.5级预防筛查标准(如存在LVH或eGFR轻度下降)的个体, 可被客观识别为心血管领域的“欲病”人群. (2) “治未病”干预的疗效评价得以量化: 干预(如中药、生活方式调整)是否有效“治未病”(即阻止疾病发展), 核心评价指标即可设定为这些早期器官损伤指标的改善或稳定. 这为基于“治未病”理论的中药新药研发提供了明确、客观、可测量的临床终点.

因此, 心血管1.5级预防不仅与中医“治未病”理念契合, 其引入的量化指标体系, 更是破解了“治未病”理论在状态界定和疗效评价上的难题, 为“治未病”的现代化实践和基于此的中药新药研发奠定了坚实的基础, 实现了中西医预防医学在量化层面的深度交融.

1.3 中医“治未病”的理论与方法赋能心血管1.5 级预防的独特优势

心血管1.5级预防策略以早期器官损伤的识别与干预为核心, 其实践模式多侧重于生物标志物筛查和基于指南/危险分层的标准化干预. 中医“治未病”理论体系所蕴含的深邃智慧和丰富方法, 则能系统性弥补西医模式的局限性, 从评估维度、干预策略和手段选择等层面显著丰富并优化心血管1.5级预防的实践.

首先, 心血管1.5级预防多从疾病本身研究, 而忽略了疾病的载体–人的因素, 而中医“治未病”理论以整体观念为指导, 致力于维持机体整体功能状态平衡, 这引导我们在评估心血管风险时, 不仅关注器官损伤的客观指标, 还需系统评估个体的整体功能状态、体质类型(如气虚、痰湿、血瘀)、情志心理因素(如焦虑、抑郁)以及生活方式、环境适应能力等. 这种多维度的、以“人”为中心的综合评估, 能更全面地识别风险根源, 为制定融合生物-心理-社会因素的整合性健康维护方案奠定基础, 更契合现代健康观. 其次, 与人体健康状态相关的表征参数复杂多样, 任何单一的参数均难以全面、准确地描绘机体状态, 而中医“治未病”着眼于整体, 通过望、闻、问、切中医四诊手段全面收集资料, 并结合体质辨识以确定证候, 进而辨证论治实现个体化干预, 可提高心血管1.5级预防的精准性和有效性[12]. 最后, 中医“治未病”具有丰富的干预方法, 如个性化药膳、茶饮指导, 八段锦、太极拳、五禽戏等运动干预, 针灸、推拿治疗, 药物干预等, 其在改善早期器官损害已获得多项研究支持[8~10], 可丰富心血管1.5级预防.

综上, 将中医“治未病”的整体观、辨证论治精髓及其丰富多样的干预手段融入心血管1.5级预防框架, 绝非简单叠加, 而是通过引入“以人为本”的评估视

角、“同病异治”的精准策略、“简便安全”的多元手段, 系统性弥补当前西医预防医学模式的不足, 显著提升该策略在风险识别、干预精准性、长期依从性及整体效能方面的水平, 是实现心血管疾病高效早期防控的优化路径.

2 “治未病”中药新药研发助力心血管1.5级预防

2.1 “治未病”中药新药研发助力早期干预

心血管早期器官损害如动脉粥样硬化、微循环障碍等发病机制复杂, 往往始于慢性炎症及代谢紊乱等多个环节. 多项研究发现, 中药可通过PI3K/AKT/mTOR、PPARγ-LXRα和MAPK/ESRK 1/2等多条信号通路调节脂质代谢、通过作用于NF-κB、JAK-STAT和NLRP3等调控炎症反应[13]. LVH是早期心血管器官损害的重要表现之一, 由机械负荷及神经内分泌等因素驱动, 其中ERK信号通路的过表达会加速LVH的发生发展, 中药通过抑制Ras/ERK1/2信号通路降低左心室质量指数(left ventricular mass index, LVMI)从而缓解LVH[14]. 肾脏作为心血管系统的重要终末器官, 其早期损伤常常表现为尿微量白蛋白/肌酐比值升高及eGFR下降, 有效控制蛋白尿不仅可延缓eGFR的下降, 还可显著降低CVD风险和全因死亡率[15]. 一项回顾性队列研究提示, 在西医常规治疗基础上加用中药, 可改善尿白蛋白/肌酐比值和eGFR, 保护肾功能[16]. 此外, 与西药相比, 中药在长期服用过程中的毒副作用较低, 耐受性和安全性较好, 更适合用于CVD的长期预防干预, 符合心血管1.5级预防的需求[17].

2.2 “治未病”中药新药研发助力个体化治疗

“辨证论治”和“体质学说”是中医学理论中独具特色的重要内容, 可根据个体的证候和体质特点制定个性化的干预方案, 其运用到“治未病”中药新药研发中以达个体化治疗, 将提高心血管1.5级预防的精准性和有效性. 中医证候与体质类型和早期心血管器官损害相关. 颈动脉内膜中层厚度在健康人群和不同中医证候之间差异显著, 其中血瘀证组内膜中层厚度最高, 其次是痰瘀互结组, 痰阻组次之, 健康组最低[18], 采用具有活血化痰功效的中药可显著改善颈动脉内膜中层厚度[19]. 舌诊是中医辨证的重要依据之一, 具有瘀点舌象的患者双侧踝臂脉搏波传导速度更高, 可作为动脉硬化的可行预测指标[20]. 瘀点舌常作为血瘀证的重要表征, 在排除混杂因素后, 瘀血体质与2型糖尿病患者的外周动脉疾病之间存在相关性[21]. 国医大师尚德俊临证中, 巧用活血功效的中药治疗外周动脉硬化疾病, 取效满意[22]. 异丙肾上腺素醇给药并结合高温高湿、高脂饮食后, 诱导的痰湿型心肌损伤小鼠中, LVH及纤维化加重, 其机制可能与痰湿干扰了甘油磷脂代谢和精氨酸-脯氨酸代谢有关[23], 而具有健脾化湿功效的四君子汤可改善心肌肥厚及心功能[24]. 视网膜病变是微循环障碍的表现之一, 在调整了其他风险因素后, 阳虚体质的患者出现视网膜病变的可能性显著降低[25], 气阴两虚证是视网膜病变人群的常见证候[26]. 结合辨证论治和体质学说, 不仅利于辨证施方, 还助于推测不同证候患者早期心血管器官损伤的易感性, 进而提高心血管早期器官损伤治疗的精准性和有效性[27], 助力心血管1.5级预防.

3 “治未病”中药新药在心血管1.5级预防中的应用

3.1 中药复方

“治未病”中药复方因其多靶点、多途径的整体调节作用在心血管1.5级预防中具有独特优势. 早期心脏损伤主要表现为LVH及心肌收缩和舒张功能下降. 有平肝潜阳功效的葛丹降压汤由钩藤、丹参、葛根、杜仲、夏枯草和牛膝组成, 通过抑制Ras/ERK1/2通路的表达降低左心室质量指数, 缓解LVH[14]. 一项多中心随机对照临床试验(randomized controlled trial, RCT)显示, 口服通脉养心丸12周可降低左心室舒张末期容积指数, 改善心脏舒张功能, 该药已上市临床应用, 气阴两虚兼血瘀证的心血管患者可参考使用[28]. 早期肾功能损害以eGFR降低和微量蛋白尿为特征. 温肾阳汤具有温补肾阳功效, RCT研究显示其可升高辨证为肾阳虚证的慢性肾病患者的eGFR并缓解肾阳虚症状[29], 同时, 在另一项RCT研究中, 在服用益气培源颗粒28天后, 相较于对照组, 观察组患者eGFR改善明显[30]. 由16种草药构成的益肾化湿颗粒, 可调节肠道菌群, 增加有益菌丰度、减少病原菌, 降低24 h蛋白尿[31]. 在常规治疗基础上, 加用渴络欣胶囊降低了糖尿病肾病患者微量白蛋白尿, 且安全性良好[32], 渴络欣胶囊和益肾化湿颗粒均已上市临床应用.

大动脉早期损伤可能会出现动脉僵硬度增加和外

周动脉的早期动脉粥样硬化. 降脂脉安颗粒由黄芪、丹参、泽泻、决明子、山楂、麦芽、荷叶组成, 在西医常规治疗基础上, 加用降脂脉安颗粒, 不仅可降低血脂水平(包括total cholesterol(TC)、triglyceride(TG)、low-density lipoprotein cholesterol(LDL-C)、apolipoprotein B(ApoB)和non-high-density lipoprotein cholesterol(非HDL-C)), 颈动脉内膜中层厚度、颈动脉斑块厚度和面积均显著减少[33]. 一项纳入14篇临床研究的meta分析显示, 具有活血通络功效的中药配方可降低颈动脉内膜中层厚度和斑块评分, 其有效性及安全性均优于单独使用西药治疗[34]. 动脉损伤致远端缺血, 可参考中医厥阴病"寒凝血瘀"的治法, 一项对以厥阴病理论立意治疗动脉损伤的方药如当归四逆汤、乌梅丸等进行的系统评价结果显示, 其可提高踝臂指数, 改善血管功能[35]. 血管钙化作为动脉早期损伤的表现之一, 目前尚无特异性的治疗药物, 我们课题组研究发现, 具有活血解毒功效的丹连通脉方可通过调节CCN3/NOTCH信号轴抑制炎症反应改善血管钙化[36].

微循环损伤常常表现为微血管功能障碍和毛细血管稀疏, 阳虚寒凝是临床微循环障碍人群的常见中医证候. 中心静脉血氧饱和度、中心静脉-动脉二氧化碳分压差、动脉乳酸、脉搏灌注指数、毛细血管再充盈时间和皮肤斑驳评分等是评估早期微循环功能的核心指标, 一项RCT研究发现, 具有温阳散寒功效的中药复方温阳败毒饮可显著改善上述指标, 从而改善患者预后[27]. 一项纳入11个RCT共计1075名患者的系统评价结果显示, 在常规治疗基础上, 加用具有温阳益气功效的麝香保心丸, 可有效降低冠脉微血管功能障碍患者的微血管阻力指数、提高冠脉血流储备[37].

3.2 单味中药

异附子碱是从单味中药钩藤中提取的主要四环氧吲哚生物碱之一, 可通过激活Nrf2并抑制MAPK通路改善去氧肾上腺素诱导的心肌细胞肥大, 具有抗氧化作用[38]. 丹参及其有效成分可抑制糖尿病小鼠促炎因子、细胞外基质积累并激活PPAR-γ来减轻肾脏肥大和蛋白尿, 减缓肾损伤[39]. 黄芪是临床常用药物, 多项研究发现, 黄芪及其提取物可作用于PERK-ATF4-CHOP和IRE1/XBP1等多条信号通路减少蛋白尿、提高eGFR, 改善肾功能[8].

动脉硬化影响组织和器官血供, 导致出现相应临床症状. 银杏叶具有活血化瘀之效, 一项随机对照试验发现, 银杏叶提取物可降低脑动脉硬化患者血瘀症量表、头晕障碍量表和眩晕视觉模拟量表评分, 且不良反应少[40]. 动脉粥样硬化是一种由脂质沉积和炎症引起的慢性疾病, 部分中药可以通过靶向改善脂质代谢和抑制炎症治疗动脉粥样硬化. 在高脂饮食喂养的$LDLR^{-/-}$小鼠中, 灵芝孢子粉三萜促进巨噬细胞ABCA1/G1介导的胆固醇外排来减少泡沫细胞, 减轻动脉粥样硬化和主动脉钙化[41]. 而龙胆苦苷通过SIRT1/Nrf2途径抑制ROS依赖的NLRP3炎症小体激活, 发挥抗动脉粥样硬化的作用[42].

微循环障碍是心血管早期器官损害的重要表现之一, 以往冠心病的研究和治疗多集中于心外膜大血管, 对冠脉微循环障碍引起的微血管性心绞痛研究有限, 而现有西药疗效有限, 中药在这方面具有显著优势. 多项研究表明, 中药及其提取物如人参皂苷、葛根素注射液可通过保护血管内皮、上调血管活性物质以维持冠脉微血管舒张功能, 降低血管阻力[9]. 除冠脉微血管外, 中药对外周微血管亦有调节作用. 莪术萜烯内酰胺通过抑制NF-κB、VEGFR2及其下游Src、Erk1/2、Akt和mTOR的磷酸化, 发挥抗炎和抗血管生成作用, 改善视网膜微血管功能, 治疗视网膜病变[43]. 综上所述, 单味中药在CVD的1.5级预防中具有广泛的应用前景. 通过深入研究单味中药的功效和机制, 可为CVD的早期预防和治疗提供更多的科学证据和临床选择.

4 挑战与机遇

将"治未病"中药新药研发融入心血管1.5级预防策略, 为CVD风险的前移管理提供了新范式, 但在落地实施中面临多重挑战, 同时也伴随着显著的机遇.

首先, 标准化与科学化难题. 中药复方成分复杂、作用机制模糊(多靶点协同效应不明)、药材质量批次间波动大, 制约了疗效的稳定性和新药研发的科学性. 但现代生物技术(单细胞测序、类器官模型、空间转录组)为深入解析中药"成分-靶点-通路-效应"网络提供了强大工具. 例如, 利用心肌类器官模型模拟LVH进程, 可高通量筛选抗肥大中药单体或有效组分群, 并精准阐明其作用机制. 构建"中药成分-靶点-通路-早期损伤标志物"网络, 探究活血化瘀类中药通过调控NF-κB、PPARγ等通路改善颈动脉内膜中层增厚的作用机制. 结合网络药理学预测和生物效价检测, 建立基于明确活性成分群和关键药效指标的"指纹图谱-生物效价"双重质控体系, 是提升中药新药质量一致性和作用机制

透明度的有效路径.

其次, 高质量临床证据不足. 现有支持中药干预心血管早期器官损伤的临床研究相对较少, 且多聚焦替代终点(如LVMI、eGFR、蛋白尿), 缺乏以心梗、卒中、心血管死亡等硬终点评价的长期疗效数据, 证据级别和说服力有待提升. 国家政策(如《“十四五”中医药发展规划》明确支持“治未病”结合现代预防医学)和国家科技重大专项(四大慢病专项)为大规模、长周期、终点驱动的高质量临床试验提供了保障. 应优先设计以延缓/逆转早期器官损伤为核心中间指标、以降低主要心血管事件为最终硬终点的注册性临床试验. 同时, 积极利用医保大数据、电子健康档案等开展真实世界研究, 补充RCT证据, 形成更完整的证据链. 严格遵循国际临床研究规范(如Consolidated Standards of Reporting Trials(CONSORT)、Standard Protocol Items: Recommendations for Interventional Trials(SPIRIT))是提升数据可靠性和国际认可度的关键.

最后, 筛查成本高与依从性瓶颈. 1.5级预防依赖早期心血管器官损伤的筛查(如血管超声、脉搏波传导速度), 技术成本高、基层普及率低, 限制了目标人群的广泛覆盖. 同时, 人群对“未病/欲病”状态认知有限, 主动筛查和长期干预的依从性差. 利用中医药“简便廉验”的优势, 使用已验证的中医证候及体质辨识量表(如血瘀、痰湿体质评分)和便携式AI工具(如舌象分析仪、脉诊设备), 结合低成本指标(如踝臂指数、问卷风险评估), 在社区初步筛选高风险人群. 将高风险人群精准引导至上级医院进行更精密的西医检测, 形成“中医初筛-西医精查”的阶梯式路径, 可显著降低整体筛查成本、提高可及性. 加强公众健康教育, 强调“欲病(早期损伤)可防可治”, 并结合移动健康数智技术进行个性化健康管理和用药提醒, 是提升长期干预依从性的重要方向. 政策层面推动将关键筛查项目(尤其结合中医简便方法)纳入公共卫生服务或医保覆盖范围也至关重要, 国家心脑血管疾病防治实施方案鼓励中西医结合的预防策略, 未来将助力筛查项目医保覆盖的落实.

尽管挑战重重, 但通过深度融合现代科技(解析机制、提升质控、赋能研究)、充分利用政策红利(支持高质量研究)、发挥中医药特色优势(简便筛查、个体化干预)并优化资源配置(阶梯筛查、医保覆盖), 基于“治未病”理论的中药新药研发必将为心血管1.5级预防策略的落地提供更坚实的科学基础和更有效的干预工具, 最终助力实现心血管健康的关口前移, 为全球CVD防控事业提供具有中医智慧的中国方案.

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Summary for “心血管1.5级预防与‘治未病’中药新药研发”

Cardiovascular 1.5 level prevention and research on new “preventive treatment of disease” of traditional Chinese medicine

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The global burden of cardiovascular disease (CVD) continues to escalate, presenting a formidable public health challenge that demands innovative and proactive mitigation strategies. Conventional prevention paradigms are dichotomized into primary prevention (for individuals with risk factors but no disease) and secondary prevention (for those with established clinical events). However, a significant gap exists for the large, at-risk population with subclinical yet pathologically evident organ damage–a pre-disease state where intervention could be most efficacious. To address this, the novel concept of Cardiovascular 1.5-level Prevention has been innovatively proposed. This strategy is precisely targeted at this demographic, aiming to bridge the critical divide between traditional primary and secondary prevention. Its core objective is to identify these individuals through advanced screening methodologies (e.g., cardiac imaging, biomarker assessment) and implement timely, targeted interventions to halt, delay, or even reverse the progression of early pathological changes, thereby preventing the onset of fulminant CVD. This approach is intrinsically aligned with the forward-thinking national health policy of “shifting the healthcare focus forward”. Intriguingly, this modern medical strategy finds a profound and ancient conceptual counterpart in Traditional Chinese Medicine (TCM) theory, specifically in the doctrine of “preventive treatment of disease” (Zhi Wei Bing). The TCM tenet of “nipping the disease in the bud” (Yu Bing Fang Wei Du Jian)-which emphasizes vigilant monitoring and pre-emptive intervention at the earliest, subtlest signs of physiological deviation-exhibits a remarkable philosophical and practical synergy with the goals of 1.5-level prevention. Both frameworks advocate for a proactive, interceptive approach during the crucial “grey zone” of disease pathogenesis, where the potential for therapeutic reversal is highest. Capitalizing on this powerful theoretical convergence, the research and development (R&D) of novel TCM drugs emerges as a particularly promising avenue for practical implementation. TCM formulations, derived from complex natural compounds, are characterized by their holistic, system-level effects and inherent multi-target, multi-pathway pharmacological profiles. This makes them exceptionally suited for modulating the complex, interconnected pathophysiological processes underlying early cardiovascular organ damage (e.g., inflammation, oxidative stress, endothelial dysfunction, fibrosis). By integrating rigorous modern research methodologies–including phytochemistry, pharmacokinetics, network pharmacology, and evidence-based clinical trials, these innovative TCM drugs are transitioning from empirical use to precision medicine. They offer the potential for tailored interventions that can effectively regulate the entire pathological network, thus providing a robust and sophisticated toolset for 1.5-level prevention. This article provides a comprehensive discussion on the theoretical alignment, mechanistic complementarity, and synergistic potential between TCM's “preventive treatment” philosophy and the contemporary Cardiovascular 1.5-level prevention strategy. We delve into the practicalities of how TCM diagnostics and pharmacotherapy can inform and enhance modern risk stratification and treatment protocols. The ultimate aims of this discourse are threefold: to stimulate and guide the R&D of a new generation of evidence-based TCM pharmaceuticals; to facilitate the tangible integration and application of the 1.5-level prevention model in clinical practice; and to contribute a unique, integrative, and effective “Chinese Solution” to the global portfolio of CVD management, one that harmonizes millennia of TCM wisdom with the precision of modern medical science.

preventive treatment, RD of novel TCM drugs, vardiovascular 1.5-level prevention, early organ damage, integrated traditional Chinese and Western medicine, strategy

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