

· 综述 ·

新型冠状病毒肺炎疫情期间糖尿病足溃疡就诊状况及防治模式探讨

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【摘要】 2020 年初, 新型冠状病毒(SARS-CoV2)席卷全球, 该病毒引发的肺炎命名为新型冠状病毒肺炎(Corona Virus Disease 2019), 各个国家疫情期间常规临床医疗诊治工作遭受极大冲击, 传统“面对面”诊治医疗模式在新冠疫情期间实施有一定的难度, 对糖尿病足溃疡的防治目标应从疫情前的尽量提高足溃疡愈合率、缩短愈合时间转变为预防足溃疡发生、阻止足溃疡感染加重、足溃疡恶化并尽量避免住院。故本文对新型冠状病毒肺炎疫情期间糖尿病足溃疡患者诊治模式进行综述, 对类似突发医疗事件期间糖尿病足溃疡的诊治策略提供依据。

【关键词】 新型冠状病毒肺炎疫情; 糖尿病足溃疡; 远程访视; 分级诊疗; 多学科协作

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【Abstract】 In 2020, the novel coronavirus swept across the globe, and the pneumonia caused by this virus was named Corona Virus Disease 2019 (COVID-19). The outbreak of the virus has greatly impacted routine clinical care in various countries, as the traditional “face-to-face” medical treatment model has faced difficulties during the COVID-19 pandemic. As a result, the treatment goals for diabetic foot ulcers during the pandemic should shift from improving ulcer healing rates and reducing healing time to preventing ulcer occurrence, stopping ulcer infection from worsening, and avoiding hospitalization as much as possible. Therefore, this article explores the changes in the diagnosis and treatment model for diabetic foot patients during the COVID-19 pandemic in order to provide strategies of, diagnosis, treatment, and prevention for patients with diabetic foot ulcers during similar medical emergencies.

【Keywords】 The Corona Virus Disease 2019 pandemic; Diabetic foot ulcers; Remote consultation; Hierarchical medical; Multidisciplinary collaboration

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2020 年新型冠状病毒席卷全球, 世界卫生组织将其命名为“2019 冠状病毒病”。糖尿病患者是新型冠状病毒肺炎病毒感染的易感人群, 感染后预后差。糖尿病足溃疡发生的危险因素包括老年、男性、血糖控制欠佳、下肢动脉病变、周围神经病变、吸烟等^[1]。而感染新型冠状病毒的糖尿病患者死亡的危险因素包括老年、男性、血糖控制欠佳、高血压和心血管疾病^[2]。因此, 新型冠状病毒肺炎疫情期间, 血糖控制欠佳的老年糖尿病患者既是糖尿病足的高危人群, 又是感染新型冠状病毒肺炎后死亡

的高危人群。

糖尿病足溃疡是糖尿病一种严重的慢性并发症, 而足溃疡不愈合是糖尿病患者住院、截肢和死亡的首要原因^[3]。糖尿病足溃疡的治疗包括及时评估足部溃疡、创面干预以及抗感染、改善血供等综合治疗^[4]。新型冠状病毒肺炎疫情爆发后, 各医疗机构和医护人员面临前所未有的挑战, 传统“面对面”诊治糖尿病足病的医疗模式在新型冠状病毒肺炎疫情期间实施有一定的难度。本文对国内外已发表的文献进行综述, 期望对类似突发医疗事件

期间糖尿病足溃疡的诊治策略提供依据。

1 新型冠状病毒肺炎疫情期间糖尿病足溃疡的诊治状况

新型冠状病毒肺炎爆发早期,糖尿病足病患者就诊人数明显下降。其可能原因包括:(1)糖尿病足溃疡患者担心到医院就诊可能感染新冠,不愿到医院就诊。(2)各大医院重新调配医疗资源,将临床工作重心放在新型冠状病毒肺炎患者的救治。新型冠状病毒肺炎期间,糖尿病足溃疡患者就诊人数下降,但收治的糖尿病足溃疡患者病情却较前明显加重^[6]。2020 年 1~3 月,浙江大学邵逸夫医院收治的糖尿病足患者较 2019 年同期减少了近一半,但严重感染的患者比例则从 2019 年的 20.7% 增加到 52.3%^[7]。在新型冠状病毒肺炎疫情期间,更多的医务工作者将工作重心调整为防疫抗疫,更多的足溃疡患者只能选择到急诊科就诊;患者就诊延迟,清创、血管重建手术等治疗不能及时安排,都可能导致糖尿病足溃疡病情加重。但不同国家关于糖尿病足溃疡的临床研究结果并非完全一致,英国、法国等亦有新型冠状病毒肺炎疫情期间截肢率降低的报道^[8-9]。

2 新型冠状病毒肺炎疫情期间糖尿病足溃疡诊治与预防模式

2.1 远程访视 传统的糖尿病足病诊治、筛查及教育都是在医院或诊所完成。新型冠状病毒肺炎疫情期间,这种“面对面”的诊疗模式受到极大限制,远程访视被各指南、共识推荐成为糖尿病足溃疡患者管理的主要模式^[10]。

糖尿病足病可通过血糖控制、定期足部评估、患者教育等措施预防其发生^[11]。研究发现,在新型冠状病毒肺炎期间通过远程会诊为糖尿病足溃疡患者提供有针对性的足部诊治服务与“面对面”诊治模式相比,具有相似的愈合好转率、截肢率和死亡率^[12]。因此,新型冠状病毒肺炎疫情期间,通过各种在线资源,对糖尿病患者进行糖尿病及足病的健康教育,有利于血糖的控制和糖尿病足溃疡的预防。

2.2 居家监护 患者教育、自我管理及足部保健可以预防糖尿病患者足溃疡的发生^[13]。糖尿病患者在主动对其双足进行自我监测及保护,并通过远程会诊降低足溃疡的发生成为可能。

尽管 2023 年《国际糖尿病足工作组糖尿病足感染指南》不推荐皮温测定作为糖尿病足感染诊断的依据,但足部皮温变化仍值得关注,糖尿病神经

性足溃疡合并感染,足部皮温可能明显升高;而在急性神经性骨关节病变时,皮温亦会升高,但为非感染性炎症,夏科足合并感染也有可能;中国糖尿病足溃疡大多数为神经缺血性溃疡,一旦形成溃疡,加重局部缺血,足部皮温会更低,所以皮温下降也需要引起重视。因此,在糖尿病足感染的早期,皮温测定结合足部照相和远程医疗有一定价值。足底压力升高是发生糖尿病足溃疡的独立危险因素^[14]。穿戴特殊的鞋子、鞋垫和智能袜子实现了对足底压力、步态的实时监控,有助于预防糖尿病足溃疡的发生^[15]。高清摄影技术使糖尿病患者可早期发现并记录足部病变。将数码相机按照在一个特制的塑料外壳里面,可拍摄出足部的高质量数码照片^[16],通过 APP,将图片及时传递给专业医护人员,使其有更直观的认识,并可远程指导治疗。

医疗互联网技术可集成远程监控、智能传感器、医疗设备并附加语音控制等,促进患者参与诊治,从而开启以家庭为基础的糖尿病足护理的数字化转型^[17]。而新型冠状病毒肺炎疫情期间,患者居家时,通过足部皮温测定、动态足底压力监测及高清摄影等技术手段,并使用特殊软件或者网络将信息传递给专业足病医护团队,使专业医护人员更为直观判断患者病情,通过视频对患者进行专业指导,使糖尿病足溃疡患者得到及时救治。

2.3 分级诊疗 新型冠状病毒肺炎期间,意大利罗马第二大学糖尿病足科采取一种特殊的分级诊疗处理糖尿病足溃疡^[18]。如果合并严重足溃疡,则被紧急转运到医院;其余患者 48~72 h 内在门诊进行评估,如果需要血管重建、手术干预或者静脉抗生素,则入院。而患者出院后或者门诊患者则根据合并症情况进行门诊评估随访。密歇根大学和南加州大学联合进行的一项观察性队列研究分析发现^[19],与疫情前相比,疫情后及时调整足病诊治模式,按照“STRIDE”方案(Strategies to reduce severe diabetic foot infections and complications during epidemics),加强高危因素筛查及患者分诊、多学科协作模式,其结果是疫情后糖尿病足溃疡患者虽然入院人数降低,保肢率增加 11%^[20]。由此可见,新型冠状病毒肺炎疫情期间,糖尿病足病患者从传统的“面对面”的诊疗模式逐渐向虚拟护理、电话干预和快速门诊分诊的模式所转变。

2.4 多学科协作 糖尿病足病诊治需要内分泌科、骨科、血管外科、营养科、心理卫生等多学科协作。基于团队的规范化诊治可将糖尿病足溃疡患者的

大截肢率降低 75%^[21]。这种多学科诊治糖尿病足溃疡可在在门诊伤口中心进行或住院完成。新型冠状病毒肺炎疫情期间,多学科协作诊治的糖尿病足治疗对于有严重感染、急性缺血及坏疽的糖尿病足溃疡患者仍是必不可少的。将线下的多学科诊疗调整为线上远程医疗,利用网络、电话、微信和远程会诊软件设备等多种形式,经过多学科评估后进而达到对糖尿病足溃疡的多学科管理^[22-23]。

总之,新型冠状病毒肺炎疫情期间,可采用远程访视、门诊和分级诊疗相结合的管理模式(表 1),对于严重、复杂的足部溃疡的危重患者,无论是否伴有合并症都应转诊并进行早期治疗^[24]。对于复杂性足部溃疡患者,需门诊评估后根据个体情况决定后续随访。而单纯性足部溃疡患者,门诊评估后可行远程管理。对于高危足及对于 Wanger1 级糖尿病足患者则可实施居家管理以及远程访视^[18]。电话、微信等可作为远程访视手段,对患者及家属进行指导,培训患者及家属居家换药^[25]。

表 1 糖尿病足溃疡分级诊疗^[26]

分级	足部指征	就诊
危急	中重度糖尿病足感染、气性坏疽、威胁肢体的急性缺血	医院
严重	轻度和部分中度感染(包括骨髓炎)、慢性肢体缺血、干性坏疽、恶化的足溃疡、活动性复科足	门诊、手术中心
监测	好转的足溃疡 稳定期复科足(未穿着稳定的鞋)	门诊、家、远程医疗
稳定	无并发症的静脉性溃疡 最近愈合的足溃疡 稳定期复科足(穿着稳固的鞋) 截肢愈合 糖尿病足风险评估	家、远程医疗

2.5 疫情与心理 新型冠状病毒肺炎期间^[27],封控、居家隔离与恐慌、抑郁等不良情绪密切相关,糖尿病患者其血糖、饮食、睡眠、运动及情绪均可受到不同程度影响。不健康的生活方式和情绪障碍,最终会导致创面愈合不良,加重糖尿病足病^[28]。医务人员应主动关注患者的情绪,通过筛查和自评量表识别不同程度的情绪障碍患者,并给予健康宣传教育、心理支持,分析引起其心理痛苦的相关因素,必要时心理专科医师干预,缓解其不良情绪。

3 展望

在新型冠状病毒肺炎疫情期间,需要加强患者的自我管理和健康教育;正确选择鞋子、定期检查足部状况等糖尿病足部溃疡的具体健康管理措施。需要加大对糖尿病足部溃疡防治的宣传力度,让更多的人了解糖尿病足溃疡的相关知识,提高人们对

糖尿病患者足部健康的关注度和预防意识,从源头上减少糖尿病足部溃疡的发生率。互联网医疗还可以提供多种服务,包括在线咨询、预约挂号、冷链送药服务等。远程医疗的发展会更向集视频、音频、远程监控等智能化医疗发展,利用远程会诊推进糖尿病足分级诊疗发展,开展多学科团队合作,加强社区医疗足病专科医师培训及基层管理,提前布局应对未来突发类似公共事件的糖尿病足诊治模式。

利益冲突 所有作者均声明不存在利益冲突

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