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微信平台引导随访护理管理措施对尿毒症居家腹膜透析的效果

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[摘要] 目的: 探讨微信平台引导随访护理管理措施在尿毒症居家腹膜透析患者中的应用效果, 为患者随访护理管理提供相关指导。方法: 选择2018年1月至2019年1月于海南医学院第一附属医院出院后居家腹膜透析的98例尿毒症患者为研究对象。按照随机单双数法, 将其分为对照组和干预组, 每组各49例。对照组患者予以传统随访护理管理措施, 干预组患者予以微信平台引导随访护理管理措施。随访0.5~1年后, 对比两组随访前后腹膜平衡试验(peritoneal equilibration test, PET)、尿素清除指数(urea clearance index, Kt/V)、肌酐清除率(creatinine clearance rate, Ccr)以及血钙、血磷、贫血等指标, 并分析两组患者腹膜炎、漂管等并发症发生状况及对护理的满意度。结果: 两组随访前透析充分率、Kt/V、Ccr相比差异无统计学意义($P>0.05$); 随访0.5~1年后, 干预组患者透析充分率、Kt/V、Ccr均明显高于对照组, 且干预组患者透析充分率、Kt/V、Ccr均明显高于随访前, 差异均有统计学意义($P<0.05$); 两组随访前血钙、血磷及贫血等指标水平相比, 差异无统计学意义($P>0.05$); 随访0.5~1年后, 干预组血钙、Hb水平均明显高于对照组, 血磷水平明显低于对照组, 且干预组血钙、Hb水平均明显高于随访前, 血磷水平明显低于随访前, 差异均有统计学意义($P<0.05$); 干预组患者腹膜炎、漂管等并发症发生率为10.20%, 明显低于对照组的28.57%, 差异有统计学意义($P<0.05$); 干预组患者对随访护理的满意度为97.96%, 明显高于对照组的75.51%, 差异有统计学意义($P<0.05$)。结论: 微信平台引导随访护理管理措施在尿毒症居家腹膜透析患者中的应用效果显著, 促进患者透析充分性的有效提高, 明显改善患者血钙、贫血等指标水平, 降低其血磷水平, 并有效减少患者腹膜炎、漂管等并发症发生状况, 值得推广应用。

[关键词] 尿毒症; 居家腹膜透析; 微信随访; 护理; 透析充分性; 腹膜炎

Effect of follow-up nursing management measures guided by WeChat platform on peritoneal dialysis at home

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Abstract **Objective:** To investigate the application effect of follow-up nursing management measures guided by WeChat platform on peritoneal dialysis at home in patients with uremia, and to provide relevant guidance for the follow-up

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nursing management of patients. **Methods:** A total of 98 uremic patients who were at home for peritoneal dialysis after discharging from the First Affiliated Hospital of Hainan Medical College from January 2018 to January 2019 were included as the research subjects. According to the random odd-even number method, they were divided into a control group and an intervention group, with 49 cases in each group. Patients in the control group were treated with traditional follow-up nursing management measures, and patients in the intervention group were treated with follow-up nursing management guided by WeChat platform. After follow-up for 6 months to 1 year, the peritoneal equilibration test (PET), urea clearance index (Kt/V), creatinine clearance rate (Ccr), blood calcium, blood phosphorus, anemia and other indicators were compared before and after follow-up in the two groups, and the incidence of complications such as peritonitis, drift tube and patients' satisfaction with nursing were analyzed in the two groups. **Results:** There was no significant difference in dialysis adequacy rate, Kt/V and Ccr between the two groups before follow-up ($P>0.05$). After 0.5 to 1 year of follow-up, the dialysis adequacy rate, Kt/V and Ccr in the intervention group were significantly higher than those in the control group, and the dialysis sufficiency rate, Kt/V, Ccr in the intervention group were significantly higher than those before the follow-up, and the differences were statistically significant ($P<0.05$). There was no statistically significant difference in the comparison of serum calcium, serum phosphorus and anemia levels between the two groups before follow-up ($P>0.05$). After 0.5 to 1 year of follow-up. The blood calcium and Hb levels of the intervention group were significantly higher than those of the control group, but blood phosphorus level was significantly lower than those of the control group, and the blood calcium and Hb levels of the intervention group were significantly higher than those before the follow-up, and the blood phosphorus level was significantly lower than that before the follow-up. The aforementioned differences were statistically significant ($P<0.05$). The incidence of complications of peritonitis and drifting tube in the intervention group was 10.20%, which was significantly lower than 28.57% of the control group, and the difference was statistically significant ($P<0.05$). The satisfaction of patients in the intervention group with follow-up care was 97.96%, which was significantly higher than 75.51% of the control group, and the difference was statistically significant ($P<0.05$). **Conclusion:** The follow-up nursing management guided by the WeChat platform has a significant effect on the peritoneal dialysis of patients with uremia at home. It is worth to be popularized in that it can promote the effective improvement of the dialysis adequacy of patients, significantly propel the levels of blood calcium, anemia and other indicators, reduce the level of blood phosphorus, and effectively decrease the incidence of peritonitis, drifting tube and other complications.

Keywords uremia; home peritoneal dialysis; WeChat follow-up; nursing; dialysis adequacy; peritonitis

腹膜透析是将腹膜当做半透膜,使用腹透管将腹透液注入到患者的腹腔内,在弥散原理下清除体内的尿毒症毒素,在渗透作用下达到超滤脱水、纠正水、电解质平衡紊乱的目的^[1-2]。经腹膜透析替代人体肾排泄功能进行治疗的优势在于患者不需要使用透析机,可以在家自行治疗,治疗过程方便。但由于多数患者缺乏对疾病的相关认知,导致患者出院后不具备一定的自我管理能力和其并发症发生率高,透析达不到良好效果^[3]。目前患者出院后随访方式主要是通过电话、短信、家访方式完成,但上述方式均存在一定的局限性。因此寻找一种便捷高效的随访方式对于提高患者自我管理能力与透析效果起至关重要的

作用。微信是新兴的即时通讯工具,操作模式较为简单且受众人群众多,交流方式灵活的同时互动性极强,应用于医疗管理领域能够有效强化对患者的管理,通过建立医护人员与患者及家属间的互动交流,有效提高患者治疗效果,维护患者健康生活^[4-5]。腹膜平衡试验(peritoneal equilibration test, PET)、肌酐清除率(creatinine clearance rate, Ccr)、血钙、血磷及贫血指标的纠正等对调整腹透方案至关重要,腹膜炎及漂管影响患者治疗,其发生与腹透操作有很大的相关性,故加强随访至关重要。本研究旨在探讨微信平台引导随访护理管理措施在尿毒症居家腹膜透析患者中的应用效果,为患者随访护理干预提供指导。

1 对象与方法

1.1 对象

选择2018年1月至2019年1月于海南医学院第一附属医院出院后居家腹膜透析的98例尿毒症患者为研究对象。纳入标准: 1)患者病情稳定, 腹膜透析治疗6个月以上; 2)患者资料完整且依从性好。排除标准: 1)腹膜透析过程中死亡的患者; 2)严重并发症患者; 3)严重精神障碍、沟通障碍患者; 4)患者及其家属均无微信号。

按照随机单双数法, 将所有研究对象分为对照组和干预组, 每组各49例。其中, 对照组女21例, 男28例, 年龄33~72(53.32±6.68)岁; 透析时间0.5~6(2.76±0.25)年; 初中及以下31例, 高中及以上18例。干预组女22例, 男29例, 年龄32~74(53.79±6.72)岁; 透析时间0.5~6(2.83±0.27)年; 初中及以下32例, 高中及以上17例。两组研究对象的基本资料相比, 差异无统计学意义($P>0.05$)。本研究获得医院伦理委员会批准同意, 患者及其家属均自愿签署同意书。

1.2 方法

对照组予以传统随访护理管理措施: 在所有患者出院前, 分别建立随访档案并存放; 在患者出院前1周进行健康宣教, 通过健康知识讲解使患者及其家属掌握疾病相关知识技能; 出院前向患者确认复诊时间、地点及相关联系人电话等基本信息; 患者出院后, 每个月对其进行1次电话随访, 询问患者居家透析及疾病恢复状况, 通过电话答疑解惑, 针对患者问题安排入院复诊等。

干预组予以微信平台引导随访护理管理措施: 1)建立相关微信平台工作小组, 本小组构成人员由临床医师、护士长、护士、网络工程人员组成, 且相互监督完成工作; 在患者住院时由医师对患者进行全面评估, 整理患者资料, 由网络工程人员将资料上传平台; 患者出院后由网络工程人员及护士负责微信平台的交流, 护士负责解答专业护理问题, 网络工程人员负责维护更新知识, 确保微信平台的正常运作。2)微信平台构建: 创建居家腹膜透析康复公众号, 确保患者及家属关注公众号, 向患者介绍公众号的运作原理, 讲解患者及家属需要配合的要点; 在征得患者同意后, 将患者的基本信息上传至微信平台, 医护人员及网络工程人员应当依据患者相关信息进行居家透析资料的编写, 资料编写应当生动形象、图文并茂且通俗易懂, 并制作相关居家

透析的视频, 上传至微信平台供患者及其家属学习。3)微信平台运行: 微信公众号运行后每周至少推送2篇腹膜透析相关文章, 包含疾病、居家护理等相关知识; 小组成员实行轮班制度, 每日13:00—17:00在线解答患者及家属问题, 纠正错误认知, 使患者进行正确居家护理, 提高患者护理依从性; 结合患者实际情况确定患者复诊时间, 协助患者进行复诊相关工作, 确保患者及时入院复查。4)互动交流: 通过视频不定时对患者及家属进行疾病相关护理知识的考察, 并对未掌握的知识错误的护理行为进行再讲解和纠正, 确保患者及家属准确掌握居家护理措施; 在微信平台与患者交流的同时进行积极备注, 对患者实时信息进行收集, 了解患者的居家护理情况及恢复情况, 同时收录患者康复心得发布在微信工作平台, 加强患者间的沟通交流。

1.3 评价指标

随访0.5~1年后, 对比两组患者随访前后PET、尿素清除指数(urea clearance index, Kt/V)、Ccr以及血钙、血磷、贫血等指标, 并分析两组患者腹膜炎、漂管等并发症发生状况及对护理的满意度。

1.4 统计学处理

采用SPSS 18.0统计软件进行数据分析, 计量资料以均数±标准差($\bar{x}\pm s$)表示, 分析采用 t 检验; 计数资料以例(%)表示, 采用 χ^2 检验分析。 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 两组患者随访前后透析充分性比较

两组患者随访前透析充分率、Kt/V、Ccr相比, 差异无统计学意义($P>0.05$); 随访0.5~1年后, 干预组患者透析充分率、Kt/V、Ccr均明显高于对照组; 且干预组患者透析充分率、Kt/V、Ccr均明显较随访前高, 差异均有统计学意义($P<0.05$, 表1)。

2.2 两组随访前后血钙、血磷及贫血等指标比较

两组随访前血钙、血磷及贫血等指标水平相比, 差异无统计学意义($P>0.05$); 随访0.5~1年后, 干预组血钙、Hb水平均明显高于对照组, 血磷水平明显低于对照组; 且干预组血钙、Hb水平均明显高于随访前, 血磷水平明显较随访前低, 差异均有统计学意义($P<0.05$, 表2)。

2.3 两组患者并发症发生状况比较

干预组腹膜炎、漂管等并发症发生率明显较对照组低, 差异有统计学意义($P < 0.05$, 表3)。

2.4 两组患者对随访护理的满意度比较

干预组对随访护理的满意度明显高于对照组, 差异有统计学意义($P < 0.05$, 表4)。

表1 两组随访前后透析充分性比较($n=49$)

Table 1 Comparison of dialysis adequacy before and after follow-up between the two groups ($n=49$)

组别	时间	透析充分率/[例(%)]	Kt/V/($\text{mL}\cdot\text{min}^{-1}\cdot 1.73\text{ m}^{-2}$)	Ccr/($\text{mL}\cdot\text{min}^{-1}\cdot 1.73\text{ m}^{-2}$)
对照组	随访前	34 (69.39)	1.90 ± 0.19	60.76 ± 7.65
	随访后	36 (73.47)	2.02 ± 0.20	62.25 ± 8.08
干预组	随访前	34 (69.39)	1.92 ± 0.16	60.69 ± 7.97
	随访后	44 (89.80)*#	2.27 ± 0.21 *#	70.56 ± 8.12 *#

与对照组随访后比较, * $P < 0.05$; 与组内随访前比较, # $P < 0.05$ 。

Compared with the control group after follow-up, * $P < 0.05$; comparison within the group before follow-up, # $P < 0.05$.

表2 两组患者随访前后血钙、血磷及贫血等指标水平比较($n=49$, $\bar{x} \pm s$)

Table 2 Comparison of the levels of blood calcium, blood phosphorus and anemia between the two groups before and after follow-up ($n=49$, $\bar{x} \pm s$)

组别	时间	血钙/($\text{mmol}\cdot\text{L}^{-1}$)	血磷/($\text{mmol}\cdot\text{L}^{-1}$)	Hb/($\text{g}\cdot\text{L}^{-1}$)
对照组	随访前	1.95 ± 0.14	2.21 ± 0.19	75.19 ± 8.18
	随访后	2.14 ± 0.25	2.10 ± 0.21	95.82 ± 10.27
干预组	随访前	1.93 ± 0.15	2.22 ± 0.22	75.31 ± 8.07
	随访后	2.48 ± 0.27 *#	1.29 ± 0.07 *#	115.31 ± 12.42 *#

与对照组随访后比较, * $P < 0.05$; 与组内随访前比较, # $P < 0.05$ 。

Compared with the control group after follow-up, * $P < 0.05$; comparison within the group before follow-up, # $P < 0.05$.

表3 两组患者并发症发生状况比较($n=49$)

Table 3 Comparison of the incidence of complications between the two groups ($n=49$)

组别	腹膜炎/[例(%)]	漂管/[例(%)]	导管出口感染/[例(%)]	引流不畅/[例(%)]	总计/[例(%)]
对照组	3 (6.12)	5 (10.20)	3 (6.12)	3 (6.12)	14 (28.57)
干预组	1 (2.04)	2 (4.08)	1 (2.04)	1 (2.04)	5 (10.20)
χ^2					5.288
P					0.021

表4 两组患者护理满意度比较($n=49$)

Table 4 Comparison of nursing satisfaction between the two groups of patients ($n=49$)

组别	非常满意/[例(%)]	满意/[例(%)]	不满意/[例(%)]	满意度/[例(%)]
对照组	15 (30.61)	22 (44.90)	12 (24.49)	37 (75.51)
干预组	29 (59.18)	19 (38.78)	1 (2.04)	48 (97.96)
χ^2				10.731
P				0.001

3 讨论

腹膜透析是目前尿毒症患者临床常规肾替代疗法, 目的在于替代肾维持人体基本工作, 现行疗法以居家透析为主, 是一种较为经济实惠的治疗方法。腹膜透析自在我国开展以来一直备受关注, 得到广大患者的一致认可, 因操作简便、花费较低使得越来越多的患者选择居家腹膜透析方法进行治疗, 取得显著治疗效果^[6-7]。但在居家腹膜透析的过程中, 因操作重复、缺少医护人员监督, 导致很多患者心理松懈, 不遵医嘱进行透析, 致使各种并发症的发生^[8]。因此, 医护人员及时指导与督促显得尤为重要。

微信是一种即时通讯软件, 因其操作便捷、互动性强被广泛使用, 微信交流方式极为灵活, 是目前社交网络的重要组成部分^[9]。微信公众号、微信群的使用, 极大地方便了医护人员与患者及其家属间的沟通, 同时能够及时有效地传递居家腹膜透析相关知识, 实现健康管理知识的持续共享, 并可以进行动态监测指导, 避免因患者心理松懈、认知不足造成的不良透析行为, 有效保障透析充分性^[10]。微信公众号的搭建在医患之间架起一座交流的桥梁, 患者能够通过微信平台随时询问疾病相关问题, 而医护人员可以借助微信平台实时回复患者问题, 及时高效传递信息; 医护人员能够通过微信平台实时了解患者在居家透析过程中出现的问题, 向患者传输透析过程中限盐、限水和补钙降磷等技巧, 指导服用药物, 实施动态监测; 同时还能够及时提醒患者定期回院复查, 有利于改善患者血钙、贫血等指标水平、降低其血磷水平, 减少患者并发症的发生, 促进其恢复^[11-13]。此外, 微信平台的使用还可以促进医患之间的沟通, 高频率的交流有助于医护人员了解患者的不良心理状况, 及时进行心理疏导; 同时经微信平台促使患者间的相互交流沟通, 分享治疗经验的同时以积极的心态面对生活, 接受治疗; 通过微信平台使医患都发挥积极作用, 构建和谐温馨交流环境, 提高患者治疗积极性, 帮助患者身体尽早恢复^[14-15]。

本研究显示: 随访0.5~1年后, 与接受传统随访护理管理措施的患者相比, 微信平台引导随访护理管理措施患者的透析充分率、Kt/V及Ccr明显更高, 说明实施微信平台引导随访护理管理措施后, 可以强化患者对居家腹透知识的认知, 有效避免其不当行为的发生, 促进患者自我管理能

力的明显提高, 进而提高其透析充分性; 血钙、Hb水平明显更高, 血磷水平明显更低, 说明微信平台引导随访护理管理措施通过微信公众号的推送及微信群的饮食指导, 加深患者对日常生活中补钙降磷的认知, 从而有效改善其钙磷代谢紊乱及贫血的情况; 腹膜炎、漂管等并发症发生率明显更低, 对随访护理的满意度更高, 说明微信平台引导随访护理管理措施可以促进患者自我管理能力的明显提高, 进而有效减少并发症的发生, 促进其预后, 进一步提高患者对随访护理的满意度。

综上所述, 微信平台引导随访护理管理措施应用于尿毒症居家腹膜透析患者的效果显著, 促进患者透析充分性的有效提高, 明显改善患者血钙、贫血等指标水平, 降低其血磷水平, 并有效减少患者腹膜炎、漂管等并发症的发生, 可进一步提高患者的生活质量, 对促进患者预后意义重大。

参考文献

1. Silva BC, Adelina E, Pereira BJ, et al. Early start peritoneal dialysis: technique survival in long-term follow-up[J]. *Kidney Blood Press Res*, 2018, 43(6): 1699-1705.
2. 王梅. 新模式下对儿童腹膜透析的门诊随访及管理的研究[J]. *医药前沿*, 2017, 7(11): 389-390.
WANG Mei. Study on outpatient follow-up and management of peritoneal dialysis in children under the new model[J]. *Front of Medicine*, 2017, 7(11): 389-390.
3. 彭红, 施素华, 洪月芬, 等. 微信健康教育提升腹膜透析患者居家认知效果的研究[J]. *中国医药指南*, 2018, 16(25): 84-85.
PENG Hong, SHI Suhua, HONG Yuefen, et al. Research on WeChat health education to improve the home cognitive effect of patients with peritoneal dialysis[J]. *China Medical Guide*, 2018, 16(25): 84-85.
4. 祖二梅, 刘新华, 刘健. 微信健康教育模式在新疆地区腹膜透析患者随访管理中的应用研究[J]. *中国现代药物应用*, 2017, 11(17): 194-195.
ZU Ermei, LIU Xinhua, LIU Jian. The application of WeChat health education model in the follow-up management of peritoneal dialysis patients in Xinjiang[J]. *China Modern Drug Application*, 2017, 11(17): 194-195.
5. 张海燕, 赵娟, 宋美乐. 应用微信开展居家腹膜透析患者延续性护理服务的实践和效果[J]. *国际护理学杂志*, 2017, 36(5): 612-613.
ZHANG Haiyan, ZHAO Juan, SONG Meile. The practice and effect

- of using WeChat to carry out continuous nursing services for patients with peritoneal dialysis at home[J]. International Journal of Nursing, 2017, 36(5): 612-613.
6. Flanagan EP, Chivate Y, Weiner DE. Home dialysis in the united states: a roadmap for increasing peritoneal dialysis utilization[J]. Am J Kidney Dis, 2020, 75(3): 413-416.
 7. 罗怡欣, 黄燕林. 个案管理优势模式对居家腹膜透析患者自我管理能力和透析充分性的影响[J]. 广西医学, 2017, 39(10): 1597-1600.
LUO Yixin, HUANG Yanlin. The influence of the case management advantage model on the self-management ability and dialysis adequacy of home peritoneal dialysis patients[J]. Guangxi Medical Journal, 2017, 39(10): 1597-1600.
 8. 钟火英. 随访护理对降低尿毒症患者居家腹膜透析并发症的效果观察[J]. 世界最新医学信息文摘, 2016, 16(28): 273.
ZHONG Huoying. Effects of follow-up nursing on reducing peritoneal dialysis complications in patients with uremia[J]. World's Newest Medical Information Abstracts, 2016, 16(28): 273.
 9. 陈宇清, 林如, 杨晓凌, 等. 现代网络通讯在腹膜透析患者随访中的应用[J]. 福建医药杂志, 2015, 37(3): 160-162.
CHEN Yuqing, LIN Ru, YANG Xiaoling, et al. The application of modern network communication in the follow-up of peritoneal dialysis patients[J]. Fujian Medical Journal, 2015, 37(3): 160-162.
 10. 黄春花. 微信平台随访对居家腹膜透析患者自我管理的效果观察[J]. 临床医学工程, 2018, 25(11): 1545-1546.
HUANG Chunhua. Effects of follow-up on WeChat platform on self-management of peritoneal dialysis patients at home[J]. Clinical Medical Engineering, 2018, 25(11): 1545-1546.
 11. 李妙青, 陈华娜, 王亚秀, 等. 微信平台在居家腹膜透析患者管理中的应用[J]. 广东医学, 2018, 39(S1): 333-334.
LI Miaqing, CHEN Huana, WANG Yaxiu, et al. Application of WeChat platform in management of peritoneal dialysis patients at home[J]. Guangdong Medicine, 2018, 39(S1): 333-334.
 12. 姜改英, 韦如仙, 王学庆, 等. 运用微信平台进行健康教育降低腹膜透析患者腹膜炎的发生率[J]. 国际移植与血液净化杂志, 2017, 15(4): 27-29.
JIANG Gaiying, WEI Ruxian, WANG Xueqing, et al. Using WeChat platform for health education to reduce the incidence of peritonitis in patients with peritoneal dialysis[J]. International Journal of Transplantation and Blood Purification, 2017, 15(4): 27-29.
 13. 邵敏, 王娟, 曹东维, 等. 微信随访提高腹膜透析患者自我管理能力及需求满意度的效果分析[J]. 现代临床护理, 2018, 17(3): 33-37.
SHAO Min, WANG Juan, CAO Dongwei, et al. Analysis of the effect of WeChat follow-up to improve the self-management ability and demand satisfaction of peritoneal dialysis patients[J]. Modern Clinical Nursing, 2018, 17(3): 33-37.
 14. 崔建英, 贾依娜. 基于微信公众号构建腹膜透析病人交互式随访平台的应用效果[J]. 护理研究, 2016, 30(15): 1889-1891.
CUI Jianying, JIA Yina. Application effect of constructing an interactive follow-up platform for peritoneal dialysis patients based on WeChat public account[J]. Nursing Research, 2016, 30(15): 1889-1891.
 15. 曾金萍, 仇知珍, 张红娣, 等. 应用微信随访管理平台对腹膜透析患者进行随访管理的价值研究[J]. 首都食品与医药, 2018, 25(6): 45-46.
ZENG Jinping, QIU Zhizhen, ZHANG Hongdi, et al. The value of follow-up management of peritoneal dialysis patients using WeChat follow-up management platform[J]. Capital Food and Medicine, 2018, 25(6): 45-46.

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