

doi: 10.13241/j.cnki.pmb.2017.31.036

2014-2016 年南充市儿童手足口病重症流行病学调查及危险因素分析

王 洁¹ 何振兴² 尚 彪³ 李 达¹ 赵菊花¹

(1 南充市中心医院皮肤科 四川 南充 637000; 2 南充市中心医院肝胆胰外科 四川 南充 637000;

3 南充市中心医院儿科 四川 南充 637000)

摘要 目的:了解南充市儿童重症手足口病流行病学特征及其相关危险因素,为降低儿童重症手足口病发病率提供依据。**方法:**对中国"疾病监测信息报告管理系统"中确诊的南充市(顺庆区、高坪区、嘉陵区、阆中市)2014-2016 年儿童手足口病的病例信息进行研究,分析该市儿童手足口病疫情、时间分布、地区分布和人群分布特征,并应用单因素和多因素 Logistic 回归分析儿童重症手足口病危险因素。**结果:**2014-2016 年顺庆区、高坪区、嘉陵区、阆中市共报告儿童手足口病 8068 例,其中重症病例 426 例,占 5.28%。全年均有手足口病发生,4~7 月为手足口病发病高峰期,2014 年峰值明显高于 2015 年、2016 年,重症手足口病时间分布和发病高峰期与以上相同。顺庆区、高坪区、嘉陵区、阆中市均有手足口病发生,阆中市重症病例比例均高于其他辖区,差异有统计学意义($P<0.05$)。男性患儿重症病例构成比较高,不同性别患儿重症病例构成比比较差异有统计学意义($P<0.05$);重症病例主要集中在 1~3 岁儿童,不同年龄段重症病例构成比比较差异有统计学意义($P<0.05$),重症病例主要分布在散居儿童和农村儿童,不同生活方式、不同家庭住址重症病例构成比比较差异有统计学意义($P<0.05$);重症病例主要分布在 3~6 天时间间隔的就诊患儿,不同就诊时间间隔重症病例构成比比较差异有统计学意义($P<0.05$)。多因素 Logistic 分析显示:年龄为 1-3 岁、散居、家庭住址为农村是重症手足口病的危险因素($P<0.05$)。**结论:**年龄为 1-3 岁、散居、家庭住址为农村是重症手足口病的危险因素,应在流动人口集中、生活条件较差的地区开展手足口病的宣传教育,提高人们对手足口病防治的认知,对于 1-3 岁儿童应作为疾病重点防控对象,提高家长疾病防控意识,以降低重症手足口病的发病率。

关键词:手足口病;流行;重症;危险因素

中图分类号:R725.9 **文献标识码:**A **文章编号:**1673-6273(2017)31-6154-05

Children with Hand Foot and Mouth Disease: Epidemiological Investigation and Risk Factors Analysis in Nanchong From 2014 to 2016

WANG Jie¹, HE Zhen-xing², SHANG Biao³, LI Da¹, ZHAO Ju-hua¹

(1 Department of Dermatology, Nanchong Central Hospital, Nanchong, Sichuan, 637000, China;

2 Department of Hepatobiliary Pancreatic Surgery, Nanchong Central Hospital, Nanchong, Sichuan, 637000, China;

3 Department of Pediatrics, Nanchong Central Hospital, Nanchong, Sichuan, 637000, China)

ABSTRACT Objective: To understand the epidemiological characteristics and risk factors of severe hand foot mouth disease in children in Nanchong, and to provide evidence for reducing the incidence of severe hand foot mouth disease. **Methods:** The case information of hand foot mouth disease in children in Nanchong(Shunqing District, Gaoping District, Jialing District, Langzhong District), which was confirmed in China's disease surveillance report management system from 2014 to 2016, was studied. The epidemic situation, time distribution, regional distribution and population distribution of hand foot mouth disease in children in the city were analyzed. The univariate and multivariate Logistic regression was used to analyze the risk factors of severe hand foot mouth disease in children. **Results:** From 2014 to 2016, a total of 8068 children with hand foot mouth disease were reported from Shunqing District, Gaoping District, Jialing District, Langzhong District. Among them, there were 426 severe cases, accounting for 5.28%. Hand foot and mouth disease occurred throughout the year, and the peak of hand foot and mouth disease occurred during April to July. The peak value in 2014 was significantly higher than that in 2015 and in 2016. The time distribution and peak incidence of severe hand foot and mouth disease were the same as the above. Hand foot mouth disease occurred in Shunqing District, Gaoping District, Jialing District, Langzhong District, and the proportion of severe cases in Langzhong District was higher than that in other districts, and the difference was statistically significant ($P<0.05$). The proportion of severe male patients was relatively higher, and the difference in the ratio of severe cases between different genders was statistically significant ($P<0.05$). Severe cases mainly concentrated in the 1~3-year-old children, there were significant differences in the proportion of severe cases between different age groups ($P<0.05$). Severe cases mainly distributed in scattering children and rural chil-

作者简介:王洁(1983-),女,本科,主治医师,从事皮肤病及性病基础与临床方面的研究,E-mail:awsgow@163.com

(收稿日期:2017-06-01 接受日期:2017-06-24)

dren, severe cases with different occupation lifestyle, family address were statistically significant difference($P<0.05$). Severe cases mainly distributed in children with 3~6 days of interval of visiting, there were significant differences in the ratio of severe cases between different visits at intervals ($P<0.05$). Logistic multivariate analysis showed that the risk factors of severe hand foot mouth disease were children with 1-3 years of age, scattering children and rural children ($P<0.05$). **Conclusion:** 1-3 years of age, scattering children and rural children are risk factors of severe hand foot mouth disease. So the propaganda and education of hand foot and mouth disease should be carried out in the areas with poor floating population and poor living conditions to raise awareness of the prevention and treatment of hand foot mouth disease. 1-3-year-old children should be taken as the focus of disease prevention and control, and should improve the awareness of disease prevention and control of children's parents in order to reduce the incidence of severe hand foot mouth disease.

Key words: Hand foot mouth disease; Epidemic; Severe case; Risk factors

Chinese Library Classification(CLC): R725.9 **Document code:** A

Article ID: 1673-6273(2017)31-6154-05

前言

手足口病是一种由肠道病毒引起的传染病^[1],主要发生于儿童,患者通常表现为发热和手、足、口腔黏膜等部位出现疱疹或皮疹等临床症状^[2]。该病主要的病原体是柯萨奇病毒 A16 型、肠道病毒 71 型以及埃可病毒等^[3,4]。感染的患儿大多数症状轻微,但有少数病例发展为重症手足口病,并发心肌炎、脑炎、神经性肺水肿等,甚至导致患儿死亡,严重危及患儿健康^[5]。我国自上世纪 80 年代开始报道手足口病,自 2008 年以来,手足口病在全国范围内流行。有报道显示 2010-2012 年我国每年的手足口病发病率约为 120/10 万,死亡率约为 3.7%^[6]。近年来,南充市手足口病疫情呈上升趋势。为进一步了解南充市儿童重症手足口病流行病学特点及其相关危险因素,笔者进行了流行病学研究,现报道如下。

1 资料与方法

1.1 研究对象

选取中国 " 疾病监测信息报告管理系统 " 中确诊的南充市(顺庆区、高坪区、嘉陵区、阆中市)2014-2016 年儿童手足口病的病例信息进行分析。所有患儿符合中国卫生与计划生育委员会制定的《手足口病预防控制指南》^[7]和《手足口病诊疗指南》中的诊断标准^[8],且年龄 0~14 周岁。

1.2 研究内容

通过查阅中国 " 疾病监测信息报告管理系统 " 关于南充

市(顺庆区、高坪区、嘉陵区、阆中市)2014-2016 年儿童手足口病的病例信息,分析 2014-2016 年南充市儿童手足口病疫情、时间分布、地区分布和人群分布特征,并对性别、年龄、生活方式、家庭住址、就诊时间间隔等因素进行分析,研究儿童手足口病的危险因素。轻症手足口病判定标准^[9]为:患儿出现典型的手、足、口、臀部皮疹,伴有或不伴有发热,经血清学确诊为手足口病,无呼吸及循环系统功能障碍、神经系统受累等。重症手足口病判定标准^[10]为:患儿有手足口病的临床表现,同时伴有呼吸及循环系统功能障碍、神经系统受累等,实验室检查示白细胞增高、血糖升高、脑脊液异常或存在胸部 X 线异常表现。

1.3 数据处理

所有数据采用 Excel 录入,并应用 SPSS 22.0 统计软件进行分析,计数资料采用例数或率表示,比较应用 χ^2 检验,等级资料比较应用秩和检验,并应用单因素和多因素 Logistic 回归分析儿童重症手足口病危险因素。以 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 2014-2016 年南充市儿童手足口病疫情概况

2014-2016 年顺庆区、高坪区、嘉陵区、阆中市共报告儿童手足口病 8068 例,每年发病率为 101.28/10 万,其中轻症病例 7642 例,占 94.72%,重症病例 426 例,占 5.28%,死亡 2 例,病死率 0.25%,重症病死率为 0.47%,见表 1。

表 1 2014-2016 年南充市儿童手足口病疫情概况(例)

Table 1 Epidemic situation of hand foot and mouth disease in Nanchong from 2014 to 2016(cases)

Time	Total population	Hand foot and mouth disease	Mild hand foot and mouth disease	Severe hand foot and mouth disease	Total deaths	Mild death	Severe death
2014	2660293	2803	2650	153	1	0	1
2015	2655983	2762	2614	148	1	0	1
2016	2649759	2503	2678	125	0	0	0
Total	7966035	8068	7642	426	2	0	2

2.2 重症手足口病时间分布

2014-2016 年全年均有手足口病发生,4~7 月为手足口病发病高峰,2014 年峰值明显高于 2015 年、2016 年。2015 年除 4~7 月流行高峰外,10 月份又出现 1 次流行高峰。重症手足口病时间分布和发病高峰与以上相同,见图 1。

2.3 重症手足口病的地区分布

2014-2016 年顺庆区、高坪区、嘉陵区、阆中市均有手足口病发生,其中农村重症手足口病比例高于城市,差异有统计学意义($P<0.05$),见表 1。阆中市重症病例比例均高于其他辖区,差异有统计学意义($P<0.05$),见表 2。

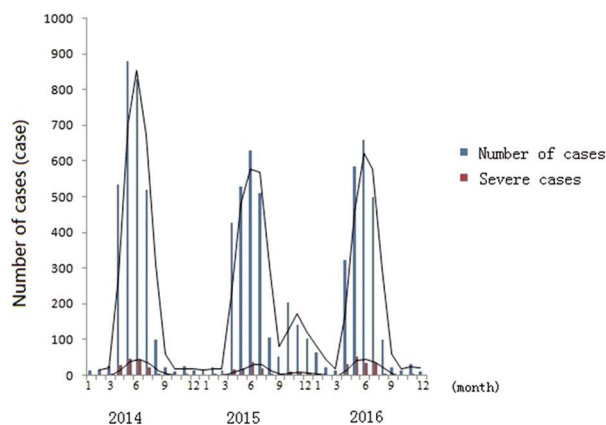


Fig.1 Time distribution chart of hand foot mouth disease in Nanchong from 2014 to 2016

2.4 人群分布

男性患儿重症病例构成比较高,不同性别患儿重症病例构成比差异有统计学意义($P<0.05$)。重症病例主要集中在 1~3 岁儿童,不同年龄段重症病例构成比差异有统计学意义($P<0.05$)。重症病例主要分布在散居儿童和农村儿童,不同生活方式、家庭住址重症病例构成比差异有统计学意义($P<0.05$)。重症病例主要分布在 3~6 天时间间隔的就诊患儿,不同就诊时间间隔重症病例构成比差异有统计学意义($P<0.05$)。见表 3。

2.5 重症手足口病的多因素 Logistic 分析

多因素 Logistic 分析显示:年龄为 1-3 岁、散居、家庭住址为农村是重症手足口病的危险因素($P<0.05$),见表 4。

3 讨论

表 2 南充市各辖区 2014-2016 年重症病例对比

Table 2 Contrast of severe cases in Nanchong District from 2014 to 2016

Time	Shunqing District	Gaoping district	Langzhong district	Jialing district
2014(n=153)	30(19.60)	34(22.22)	58(37.91)* [#] &	31(3.34)
2015(n=148)	28(18.92)	31(20.95)	62(41.89) [#] *&	27(18.24)
2016(n=125)	26(20.80)	30(24.00)	41(32.80)*& [#]	28(22.40)

Note: compared with Shunqing District, * $P<0.05$, compared with Gaoping District, [#] $P<0.05$, compared with Jialing District, & $P<0.05$.

表 3 2014-2016 年南充市手足口病人群分布

Table 3 Population distribution of hand foot and mouth disease from 2014 to 2016

Factors		Mild case (cases)	Constituent ratio (%)	Severe case (cases)	Constituent ratio (%)	Z or χ^2	P
Gender	Male	4593	60.10	228	53.52	7.267	0.007
	Female	3049	39.90	198	46.48		
Age	0~	659	8.62	10	2.35	238.455	0.000
	1~	1811	23.70	231	54.23		
	2~	1715	22.44	108	25.35		
	3~	1633	21.37	46	10.80		
	4~	823	10.77	14	3.29		
	5~	991	12.97	17	4.00		
	Live scattered	5233	68.48	305	71.60		
Life style	Kindergarten	1956	25.60	98	23.00	128.484	0.000
	Student	425	5.56	23	5.40		
	Other	28	0.37	0	0.00		
Home address	Town	4418	57.81	114	26.76	65.983	0.000
	Rural areas	3224	42.19	312	73.24		
Visiting interval	0~	4966	64.98	141	33.10	32.784	0.032
	3~	2527	33.07	226	53.05		
	6~	149	1.95	59	13.85		

手足口病是儿童常见的传染病,主要由柯萨奇病毒 A16 型、肠道病毒 71 型以及埃可病毒等引起,属于法定报告的丙类传染病^[11-13]。该病自 2008 年起在全国范围内广泛流行,发病率

呈升高趋势^[14]。有报道显示^[15],目前我国每年发生手足口病病例约在 28000 例左右,其中重症手足口病约占 1.28~6.43%,各地区手足口病发病率有显著差异。本研究对南充市 2014-2016 年

表 4 重症手足口病的多因素 Logistic 分析

Table 4 Multivariate Logistic analysis of severe hand foot and mouth disease

Factors	β	S.E	Wald	P	OR	95%CI
1-3 years of age	0.128	0.065	7.065	0.012	1.438	1.102~2.091
Live scattered	0.804	0.061	9.218	0.009	1.277	0.821~1.787
Home address of rural areas	0.356	0.128	6.778	0.015	0.916	0.327~1.452

手足口病发病情况进行了调查,结果显示 2014-2016 年南充市(顺庆区、高坪区、嘉陵区、阆中市)共报告儿童手足口病 8068 例,每年发病率为 101.28/10 万,其中轻症病例 7642 例,占 94.72%,重症病例 426 例,占 5.28%,与全国发病水平相当^[16]。从手足口病的发病时间分布来看,2014-2016 年全年均有手足发病发生,2014 年峰值明显高于 2015 年、2016 年。显示手足口病发病存在一定周期性,这可能与病毒类型变化和易感人群的积累有关^[17,18]。从发病高峰来看,4~7 月为手足口病发病高峰,2015 年除 4~7 月流行高峰外,10 月份又出现 1 次流行高峰,重症手足口病时间分布和发病高峰与以上相同。这与其他同类报道基本一致,这可能与春夏交替气温升高,降水量增多有关^[19-21]。南充地区气温较高,潮湿,4~7 月的环境适合肠道病毒生存,并为其传播提供了调节。因此相关部门在春夏交替时应做好重症手足口病的防控工作。

从重症手足口病地区分布来看,2014-2016 年南充市 4 个辖区均有手足口病发生,其中农村重症手足口病比例高于城市,阆中市重症病例比例高于其他辖区。手足口病的传播主要通过接触传播,农村重症手足口病比例高于城市主要原因是农村卫生条件较差,外出务工的人员较多,儿童多由祖辈看管,相关教育较为薄弱,饮水、饮食等卫生意识淡薄^[22,23]。而琼山区人口流动性较大,也是造成发病率较高的原因。从重症手足口病人分布来看,男性患儿重症病例构成比较高,不同性别患儿重症病例构成比比较差异有统计学意义。这可能与男性儿童户外活动相对较多,不注意个人卫生等有关^[24,25]。重症病例主要集中在 1~3 岁儿童,尤其是 1~2 岁年龄组构成比最高。这也符合手足口病 1~3 岁小儿高发的流行特征^[26,27]。这一年龄段的儿童户外活动较多,卫生意识尚不健全,而此时儿童免疫系统尚未发育完善,易发生接触传染。尤其是大小便不能自理的学龄前儿童,卫生意识淡薄,加之接触同年龄段儿童较多,患病风险必然增高^[28]。重症病例主要分布在 3~6 天时间间隔的就诊患儿,不同就诊时间间隔重症病例构成比比较差异有统计学意义。这主要是由于就诊时间间隔 6 天以上的儿童往往病情较轻,或者病情得到了控制,而对于 1~3 天就诊的儿童,由于进行了早期治疗,重症比例也较低^[29,30]。本研究通过重症手足口病的多因素 Logistic 分析显示年龄为 1-3 岁、散居、家庭住址为农村是重症手足口病的危险因素。表明年龄和生活环境仍是影响重症手足口病发病的重要因素。提示应在流动人口集中、生活条件较差的地区开展手足口病的宣传教育,提高人们对手足口病防治的认知。对低年龄儿童应作为重点防控对象,以降低重症手足口病的发病率。

综上所述,年龄为 1-3 岁、散居、家庭住址为农村是重症手

足口病的危险因素,应在流动人口集中、生活条件较差的地区开展手足口病的宣传教育,提高人们对手足口病防治的认知,对于 1-3 岁儿童应作为疾病重点防控对象,提高家长疾病防控意识,以降低重症手足口病的发病率。

参考文献(References)

- [1] Wu Q, Fu X, Jiang L, et al. Prevalence of enteroviruses in healthy populations and excretion of pathogens in patients with hand, foot, and mouth disease in a highly endemic area of southwest China [J]. PLoS One, 2017, 12(7): e0181234
- [2] Wei M, Meng F, Wang S, et al. 2-Year Efficacy, Immunogenicity, and Safety of Vigoo Enterovirus 71 Vaccine in Healthy Chinese Children: A Randomized Open-Label Study[J]. J Infect Dis, 2017, 215(1): 56-63
- [3] Mahabal G, George L, Bindra M, et al. Late-onset acute graft-versus-host disease mimicking hand, foot, and mouth disease[J]. Indian Dermatol Online J, 2016, 7(6): 509-511
- [4] Wu Q, Fu X, Jiang L, et al. Prevalence of enteroviruses in healthy populations and excretion of pathogens in patients with hand, foot, and mouth disease in a highly endemic area of southwest China [J]. PLoS One, 2017, 12(7): e0181234
- [5] Qiu J, Lu X, Liu X, et al. Derivation and Validation of a Mortality Risk Score for Severe Hand, Foot and Mouth Disease in China[J]. Sci Rep, 2017, 7(1): 3371
- [6] 张志刚,蔡钢.手足口病方辅助治疗手足口病患儿的临床疗效及对细胞因子的影响研究[J].中国全科医学,2016, 19(24): 2935-2938
Zhang Zhi-gang, Cai Gang. Clinical Effects of Adjuvant Therapy of Traditional Chinese Medicine Prescription on Children With Hand, Foot and Mouth Disease and Its Influence of Cytokines [J]. Chinese General Practice, 2016, 19(24): 2935-2938
- [7] 石婷,田健美,孔小行,等.肠道病毒 71 型重症手足口病临床、外周血及脑脊液检查分析[J].中国血液流变学杂志,2016, 26(1): 98-100
Shi Ting, Tian Jian-mei, Kong Xiao-xing, et al. Clinical and peripheral blood and cerebrospinal fluid examination of severe hand, foot and mouth disease of enterovirus 71[J]. Chinese Journal of Hemorheology, 2016, 26(1): 98-100
- [8] 王晓宇,成怡冰,宋春兰.丙种球蛋白对 EV71 相关重症手足口病患儿的临床疗效及 70 水平的影响 [J]. 广东医学, 2016, 37(17): 2663-2666
Wang Xiao-yu, Cheng Yi-bing, Song Chun-lan. Effects of gamma globulin on levels of heat shock protein 70 in children with severe hand foot and mouth disease associated with EV71 [J]. Guangdong Medical Journal, 2016, 37(17): 2663-2666
- [9] Zhu L, Li W, Qi G, et al. The immune mechanism of intestinal tract Toll-like receptor in mediating EV71 virus type severe hand-foot-and-mouth disease and the MAPK pathway [J]. Exp Ther Med, 2017,

- 13(5): 2263-2266
- [10] Rodríguez-Zúñiga MJM, Vértiz-Gúrate K, Cortéz-Franco F, et al. Hand, foot, and mouth disease in a hospital in Callao in 2016 [J]. Rev Peru Med Exp Salud Publica, 2017, 34(1): 132-138
- [11] Zhu L, Li W, Qi G, et al. The immune mechanism of intestinal tract Toll-like receptor in mediating EV71 virus type severe hand-foot-and-mouth disease and the MAPK pathway [J]. Exp Ther Med, 2017, 13(5): 2263-2266
- [12] Zhao Y, Zhang H, Liu H, et al. Complete Genome Sequence of Human Echovirus 20 Strain 812/YN/CHN/2010, Associated with Severe Hand-Foot-and-Mouth Disease [J]. Genome Announc, 2017, 5(23): e00486-17
- [13] Zheng W, Shi H, Chen Y, et al. Alteration of serum high-mobility group protein 1 (HMGB1) levels in children with enterovirus 71-induced hand, foot, and mouth disease[J]. Medicine (Baltimore), 2017, 96(17): e6764
- [14] Reyes M, Piotrowski M, Ang SK, et al. Exploiting the Anti-Aggregation of Gold Nanostars for Rapid Detection of Hand, Foot, and Mouth Disease Causing Enterovirus 71 Using Surface-Enhanced Raman Spectroscopy[J]. Anal Chem, 2017, 89(10): 5373-5381
- [15] Weng Y, Chen W, Huang M, et al. Epidemiology and etiology of hand, foot, and mouth disease in Fujian province, 2008-2014[J]. Arch Virol, 2017, 162(2): 535-542
- [16] Wu J, Cheng J, Xu Z, et al. Nonlinear and Interactive Effects of Temperature and Humidity on Childhood Hand, Foot and Mouth Disease in Hefei, China[J]. Pediatr Infect Dis J, 2016, 35(10): 1086-1091
- [17] Tian H, Zhang Y, Shi Y, et al. Epidemiological and aetiological characteristics of hand, foot, and mouth disease in Shijiazhuang City, Hebei province, China, 2009-2012 [J]. PLoS One, 2017, 12(5): e0176604
- [18] Shao P, Wu X, Li H, et al. Clinical significance of inflammatory cytokine and chemokine expression in hand, foot and mouth disease[J]. Mol Med Rep, 2017, 15(5): 2859-2866
- [19] Tandon M, Gupta A, Singh P, et al. Unilateral hemorrhagic maculopathy: An uncommon manifestation of hand, foot, and mouth disease [J]. Indian J Ophthalmol, 2016, 64(10): 772-774
- [20] Cheng J, Zhu R, Xu Z, et al. Impact of temperature variation between adjacent days on childhood hand, foot and mouth disease during April and July in urban and rural Hefei, China [J]. Int J Biometeorol, 2016, 60(6): 883-890
- [21] Siegel K, Cook AR, La H. The impact of hand, foot and mouth disease control policies in Singapore: A qualitative analysis of public perceptions[J]. J Public Health Policy, 2017, 38(2): 271-287
- [22] Wang XF, Dong WF, Dai T. Early risk indicators for hand, foot and mouth disease clusters in China [J]. Infect Dis (Lond), 2017, 49(4): 312-314
- [23] Chen SM, Du JW, Jin YM, et al. Risk Factors for Severe Hand-Foot-Mouth Disease in Children in Hainan, China, 2011-2012 [J]. Asia Pac J Public Health, 2015, 27(7): 715-722
- [24] Luo KW, Gao LD, Hu SX, et al. Hand, Foot, and Mouth Disease in Hunan Province, China, 2009-2014: Epidemiology and Death Risk Factors[J]. PLoS One, 2016, 11(11): e0167269
- [25] Yan Z, Shang Y, Li F, et al. Therapeutic efficacy of phentolamine in the management of severe hand, foot and mouth disease combined with pulmonary edema[J]. Exp Ther Med, 2017, 13(4): 1403-1407
- [26] Xia Y, Shan J, Ji H, et al. Study of the epidemiology and etiological characteristics of hand, foot, and mouth disease in Suzhou City, East China, 2011-2014[J]. Arch Virol, 2016, 161(7): 1933-1943
- [27] Hegde R, Kowalli S, Nagaraja K, et al. Serosurveillance of foot and mouth disease in Karnataka state, India: a 3 years study [J]. Virusdis-ease, 2016, 27(3): 294-302
- [28] Fang Y, Wang S, Zhang L, et al. Risk factors of severe hand, foot and mouth disease: a meta-analysis [J]. Scand J Infect Dis, 2014, 46(7): 515-522
- [29] Zhang B, Wan X, Ouyang FS, et al. Machine Learning Algorithms for Risk Prediction of Severe Hand-Foot-Mouth Disease in Children[J]. Sci Rep, 2017, 7(1): 5368
- [30] Li W, Teng G, Tong H, et al. Study on risk factors for severe hand, foot and mouth disease in China[J]. PLoS One, 2014, 9(1): e87603

(上接第 6131 页)

- [24] Samoni S, Petrucci I, Fumagalli G, et al. The role of peritoneal ultra-filtration in the treatment of refractory congestive heart failure [J]. JRSM Open, 2015, 6(3): 2054270414560922
- [25] Dudenbostel T, Siddiqui M, Oparil S, et al. Refractory hypertension: a novel phenotype of antihypertensive treatment failure[J]. Hypertension, 2016: Hypertensionaha.116.06587
- [26] Siddiqui M, Dudenbostel T, Calhoun D A. Resistant and refractory hypertension: Antihypertensive treatment resistance versus treatment failure[J]. Canadian Journal of Cardiology, 2015, 32(5): 603-606
- [27] Dk L, Od L. Factors Related to Defaulters and Treatment Failure of tuberculosis Patients in the DOTS Program in the Sunsari District of Eastern Nepal [J]. Saarc Journal of Tb Lung Diseases & Hiv/aids, 2010, 6(1)
- [28] 刘思泰, 蒋涛, 冉斌, 等. 新活素治疗充血性心力衰竭 48 例临床观察[J]. 四川医学, 2009, 30(5): 711-712
- Liu Si-tai, Jiang Tao, Ran Bin, et al. New live factor in treatment of congestive heart failure: clinical observation of 48 cases [J]. Sichuan medical journal, 2009, 30(5): 711-712
- [29] 王冬娟. 新活素治疗慢性心力衰竭的临床效果观察[J]. 北方药学, 2016, 13(4): 183-184
- Wang Dong-juan. Observation of clinical effects of new live factor on chronic heart failure [J]. Chinese Academy of medicine, 2016, 13(4): 183-184
- [30] 侯淑艳. 新活素治疗慢性心力衰竭的疗效观察[J]. 中国现代药物应用, 2015, (6): 128-129
- Hou Shu-yan. Observation of the curative effect of new live factor on chronic heart failure [J]. Chinese modern medicine application, 2015 (6): 128-129