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经验交流

330株铜绿假单胞菌耐药情况分析

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[**关键词**] 铜绿假单胞菌;抗生素;耐药性因素
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随着广谱抗生素在临床广泛使用,铜绿假单胞菌(Pseudomonas aeruginosa,Pa)在多种抗菌药物中出现了极高的耐药性,并有上升趋势。由于细菌的不断变迁和耐药率逐渐增多,出现了多重耐药铜绿假单胞菌[1],严重影响到医院感染控制与临床治疗效果。为了加强耐药性的检测,为临床合理使用抗生素提供依据,本研究对本院住院患者分离的330株铜绿假单胞菌进行了药敏实验,分析其菌株来源、耐药性分布等,现报告如下。

1 资料与方法

1.1 一般资料

选择本院2011年6月至2013年6月感染患者330例,其中男性186例,女性144例,年龄31~67(47.1±2.8)岁。每例患者根据感染情况选取1种临床标本送检,共分离出铜绿假单胞菌330株,并依据抗菌药物药敏实验进行菌种鉴定。

1.2 方法

药物敏感性试验:采用美国临床实验室标准化委员会(NCCLS)推荐的纸片扩散法(K-B法)测定铜绿假单胞菌对抗菌药物的敏感性;质控菌株铜绿假单胞菌ATCC27853和药敏纸片等均购自卫生部药品生物制品鉴定所。药敏试验培养基选自杭州天和微生物试剂公司MH肉汤与MH琼脂。

应用PCR技术检测分离出的铜绿假单胞菌,严格按照《临床检验操作规程》对分离菌株进行测定[2],并根据铜绿假单胞菌特点进行判断。选取血琼脂培养基上生长良好的革兰阴性杆菌,测氧化酶试验阳性者做菌种鉴定。

1.3 统计学分析

采用SPSS 13.0统计软件,计量资料以$\bar{x}\pm s$表示,采用t检验;率的比较采用χ^2检验。

2 结果

2.1 临床标本的来源情况

330株铜绿假单胞菌主要来自于患者的痰液(220株,占66.7%),其余分别来自于尿液(41株,12.4%)、脓液(32株,9.7%)、血液(18株,5.5%)、咽拭子(15株,4.5%)、伤口分泌物(4株,1.2%)。

2.2 铜绿假单胞菌药敏实验及耐药情况

经K-B法测定铜绿假单胞菌对抗生素的药敏实验,结果显示铜绿假单胞菌耐药性从高到低的抗生素依次为:头孢唑林、头孢噻肟、头孢哌酮、氨曲南、亚胺培南、庆大霉素、左氧氟沙星、头孢他啶,其耐药性分别为96.6%、59.4%、54.5%、44.2%、32.7%、26.3%、19.0%、18.8%。

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2.3 铜绿假单胞菌耐药的影响因素

使用碳青霉烯类、喹诺酮类等抗菌素或使用种类≥3种及使用时间≥4周、住院时间≥3周、气管插管≥7 d等是造成铜绿假单胞菌耐药和感染的主要因素($P<0.01$,表1)。

表1 铜绿假单胞菌耐药的影响因素分析($n=330$)

影响因素	耐药株	无耐药株	P值
抗菌素			
<3种	95	97	0.006 4
≥3种	89	49	
使用时间			
<4周	99	107	0.019 6
≥4周	76	48	
住院时间			
<3周	96	89	0.012 8
≥3周	95	50	
气管插管			
<7 d	13	35	0.000 1
≥7 d	20	8	

3 讨论

铜绿假单胞菌是目前临床最常见的院内感染条件致病菌,广泛存在于自然界中,可引起人体各部位感染,该菌大多分布在感染患者的呼吸道、痰液、尿液、血液、伤口分泌物中,尤其患有糖尿病、血液病、恶性肿瘤化疗及术后长期使用抗菌素治疗等患者易感染本菌,并可导致菌血症或败血症。本研究结果显示,有220株(66.7%)来源于痰液,呼吸道感染显著高于其他部位感染,其主要原因可能是铜绿假单胞菌容易定植于呼吸道,同时因气管插管、鼻饲插管、流感病毒感染或各种炎症等因素损害了呼吸道黏膜以及隔离消毒制度不严格等有关[3]。

铜绿假单胞菌耐药性增加因素主要与耐药机制和临床不合理用药等相关。铜绿假单胞菌的耐药机制较复杂,可携带多种耐药基因,对不同抗菌素有不同的耐药机制,临床抗菌素使用越广泛,携带新耐药基因的优势菌和菌群量就越多[4];通过我们临床观察也证实,铜绿假单胞菌对碳青霉烯类、氨基糖苷类、喹诺酮类、β内酰胺酶类等抗菌素具有很高的耐药性,在抗菌素治疗中通过延长治疗或住院等多种途径产生耐药,尤其是以上这些抗菌素使用时间≥4周、住院时间≥3周、患者气管插管≥7 d等因素都会增加铜绿假单胞菌的耐药基因突变率。因此,在临床治疗中,对于重症感染,应积极采取降阶梯方案,快速控制感染,并尽量避免长期大量应用多种抗菌素,在临床操作中,严格执行各项无菌操作制度,避免院内感染的发生。

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