

2022年沈阳市某三级甲等医院细菌耐药监测结果分析

郭丽洁¹, 杨书桓², 李富顺¹, 陈静静¹, 王齐晖¹, 褚云卓¹

(1. 中国医科大学附属第一医院检验科, 沈阳 110001; 2. 沈阳药科大学药学院, 辽宁 本溪 117004)

摘要 目的 分析2022年沈阳市某三级甲等医院病原菌分布及其耐药情况, 为医院制定抗菌药物应用策略提供依据。**方法** 收集从2022年沈阳市某三级甲等医院就诊患者中分离的病原菌, 按照全国临床检验操作规程的要求进行菌株鉴定及药敏试验, 使用Whonet 5.6软件进行数据分析。**结果** 2022年共分离4 968株病原菌, 其中前5位为大肠埃希菌、肺炎克雷伯菌、鲍曼不动杆菌、屎肠球菌和铜绿假单胞菌。大肠埃希菌和肺炎克雷伯菌对碳青霉烯类药物耐药率分别为1.9%和17.7%, 阴沟肠杆菌对亚胺培南和美罗培南耐药率分别为26.7%和25.0%。耐甲氧西林金黄色葡萄球菌(MRSA)分离率15.6%。万古霉素耐药屎肠球菌、利奈唑胺耐药粪肠球菌分离率分别为7.1%、11.6%。热带念珠菌对氟康唑耐药率>20%。**结论** 该医院病原菌分布及耐药率与国内其他地区监测结果存在差异, 有必要进行医院菌株的耐药监测, 及时了解病原菌分布及耐药情况, 为抗感染诊治提供依据。

关键词 细菌耐药监测; 药敏试验; 碳青霉烯耐药革兰氏阴性杆菌

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Analysis of bacterial resistance monitoring results in a tertiary hospital in Shenyang in 2022

GUO Lijie¹, YANG Shuhuan², LI Fushun¹, CHEN Jingjing¹, WANG Qihui¹, CHU Yunzhuo¹

(1. Department of Laboratory Medicine, The First Hospital of China Medical University, Shenyang 110001, China; 2. School of Pharmacy, Shenyang Pharmaceutical University, Benxi 117004, China)

Abstract Objective To analyze pathogen distribution and drug resistance in a tertiary hospital in Shenyang in 2022 and provide evidence-based guidance for this and other hospitals to formulate antibacterial drug application strategies. **Methods** In 2022, bacterial isolates collected from patients in a tertiary hospital in Shenyang were identified and subjected to drug sensitivity tests based on the requirements of the national clinical laboratory operation procedures. The data were analyzed using Whonet 5.6 software. **Results** In total, 4 968 pathogenic strains were isolated from this hospital in 2022. The top five isolates were *Escherichia coli*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Enterococcus faecalis*, and *Pseudomonas aeruginosa*. The resistance rates of *Escherichia coli* and *Klebsiella pneumoniae* to carbapenems were 1.9% and 17.7%, respectively. The resistance rates of *Enterobacter cloacae* to imipenem and meropenem were 26.7% and 25.0%, respectively. The isolation rate of methicillin-resistant *Staphylococcus aureus* (MRSA) was 15.6%. The resistance rates of vancomycin-resistant *Enterococcus* and linezolid-resistant *Enterococcus faecalis* were 7.1% and 11.6%, respectively. The resistance rates of tropical yeasts to fluconazole was >20%. **Conclusion** The distribution and drug resistance of pathogens in this hospital differed from those in other regions of China. The drug resistance of strains in this hospital should be closely monitored to understand the distribution and drug resistance of pathogens in a timely manner and to provide guidance for the diagnosis and treatment of infections.

Keywords drug resistance monitoring; drug sensitivity test; carbapenem-resistant Gram-negative bacilli

抗微生物药物的耐药性对公共卫生和医疗诊治构成越来越大的威胁^[1]。近10年来, 多重耐药菌、泛耐药菌的出现, 特别是泛耐药革兰氏阴性杆菌的快速增加, 不仅增加了对疾病的诊治难度, 同时也增加了患者的诊治成本。细菌耐药性监测可了解细

菌耐药的变化, 也可促进临床合理应用抗菌药物。本研究拟分析2022年沈阳市某三级甲等医院的抗菌药物耐药性, 以为临床抗感染治疗提供依据。

1 材料与方法

1.1 菌株来源

收集从2022年1月1日至12月31日沈阳市某三级甲等医院就诊患者中分离的病原菌, 同一患者重复菌株只保留第1株。

作者简介: 郭丽洁 (1972-), 女, 主管技师, 本科。

通信作者: 褚云卓, E-mail: cyz6630@163.com

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1.2 菌种鉴定及药敏试验

菌种鉴定及药敏试验方法均参照全国临床检验操作规程(第4版)。菌种鉴定使用法国梅里埃公司的VITEK MS和VITEK 2系统,药敏试验使用梅里埃公司配套药敏卡,用KB法或E-test法补充或确认药物敏感性;替加环素及黏菌素采用微量肉汤稀释法(温州康泰生物)确认药物敏感性。每周使用标准菌株进行质量控制,若检测频率<1次/周,需检测日进行质量控制。

1.3 耐药菌检测

超广谱β-内酰胺酶(extended-spectrum β-lactamases, ESBL)是指能水解青霉素类,三代、四代头孢菌素及单环类的一类β-内酰胺酶,确证试验采用临床和实验室标准协会(Clinical and Laboratory Standards Institute, CLSI)推荐纸片扩散法。碳青霉烯耐药肠杆菌目菌(carbapenem resistant *Enterobacteriaceae*, CRE)指对亚胺培南、美罗培南或厄他培南中任一种耐

药,采用E-test法确认药物敏感性。

1.4 统计学分析

采用Whonet 5.6软件进行统计分析。抗菌药物采用2022 CLSI折点;替加环素采用FDA折点^[2];头孢哌酮/舒巴坦采用肠杆菌目头孢哌酮折点;头孢唑林及头孢呋辛采用注射给药方式折点。

2 结果

2.1 菌株分布

2022年共分离4 968株病原菌,其中,21.3%(1 058/4 968)来自门诊急诊患者,78.7%(3 910/4 968)来自住院患者;住院患者中,主要分离自重症医学科14.8%(578/3 910)、器官移植科12.6%(493/3 910)、呼吸内科8.2%(320/3 910)、神经内科7.8%(304/3 910)、心脏外科7.3%(284/3 910)及神经外科6.3%(247/3 910),见表1。

病原菌中,革兰氏阳性菌30.4%(1 509/4 968)、

表1 主要病原菌的科室分布

Tab.1 Department distribution of main pathogenic bacteria

Pathogen	ICU	OTD	EM	RM	NE	CS	NS	PS	UR	HB	ES	GC	IM	ID	Rheum	GI	Other
<i>Escherichia coli</i>	49	30	63	8	37	7	8	23	56	13	31	9	30	8	37	9	230
<i>Klebsiella pneumoniae</i> ss. <i>pneumoniae</i>	50	39	67	47	51	119	26	16	13	17	8	17	8	22	9	10	98
<i>Acinetobacter baumannii</i>	80	61	43	56	57	22	51	19	1	16	1	11	1	5	2	5	48
<i>Enterococcus faecium</i>	50	70	38	21	43	2	17	28	14	18	2	13	0	21	2	13	72
<i>Pseudomonas aeruginosa</i>	45	29	29	40	22	22	27	19	5	11	9	11	3	2	5	4	87
<i>Staphylococcus aureus</i> ss. <i>aureus</i>	5	2	24	14	5	46	16	1	2	4	16	1	9	5	2	2	95
<i>Staphylococcus epidermidis</i>	28	13	12	9	8	5	8	5	11	12	11	6	1	3	3	4	79
<i>Stenotrophomonas maltophilia</i>	32	28	13	26	17	14	14	9	1	8	1	4	1	3	1	3	33
<i>Enterococcus faecalis</i>	11	18	11	1	11	0	4	4	20	4	9	8	2	3	5	5	49
<i>Staphylococcus hominis</i> ss. <i>hominis</i>	22	4	29	7	2	4	1	2	4	3	4	5	0	1	3	1	48
<i>Enterobacter cloacae</i>	13	14	4	8	5	6	3	11	1	4	2	4	2	2	2	1	38
<i>Candida albicans</i>	24	16	9	15	6	3	1	6	3	5	2	1	2	3	3	1	14
<i>Proteus mirabilis</i>	11	9	4	4	5	3	1	2	18	0	1	5	0	1	3	4	32
<i>Streptococcus agalactiae</i>	1	0	0	1	0	1	1	0	8	0	2	0	33	0	2	0	34
<i>Candida parapsilosis</i>	12	16	4	4	0	0	0	4	0	5	1	2	0	3	0	1	19
<i>Staphylococcus haemolyticus</i>	5	6	5	3	3	0	0	4	3	3	3	2	1	0	2	1	19
<i>Acinetobacter pittii</i>	7	22	1	3	1	0	4	1	2	3	2	0	1	1	1	1	9
<i>Candida tropicalis</i>	10	4	6	8	1	0	3	1	1	0	3	0	0	2	0	3	13
<i>Chryseobacterium indologenes</i>	5	32	1	2	1	2	2	1	0	3	0	0	0	1	0	0	3
Other	118	80	55	43	29	28	26	33	16	20	21	30	7	15	18	12	181
Total	578	493	418	320	304	284	213	189	179	149	129	129	101	101	100	80	1 201

ICU, intensive care unit; OTD, organ transplantation department; EM, emergency medicine; RM, respiratory medicine; NE, neurology; CS, cardiac surgery; NS, neurosurgery; PS, pancreatic surgery; UR, urology; HB, hepatobiliary surgery; ES, emergency surgery; GC, geriatric cardiology; IM, internal medicine outpatient clinic; ID, infectious diseases; Rheum, rheumatology and immunology; GI, gastroenterology.

革兰氏阴性菌63.3% (3 145/4 968)、真菌6.3% (314/4 968)。菌株主要来自尿液25.1% (1 249/4 968)、痰18.4% (912/4 968)、引流液14.6% (724/4 968) 和血液13.5% (672/4 968), 见表2。

表2 常见标本类型分离的主要病原菌分布
Tab.2 Distribution of main pathogenic bacteria isolated from common specimen types

Bacteria	n	Urine	Respiratory	Fluid	Blood	Secretion	Bile	Catheter	Abdominal fluid	Cerebrospinal fluid	Tissue	Pleural fluid	Other
<i>Escherichia coli</i>	648	338	27	75	85	78	29	1	7	1	0	1	6
<i>Klebsiella pneumoniae</i>	617	109	273	78	60	57	16	9	3	6	2	1	3
<i>Acinetobacter baumannii</i>	479	42	249	71	34	19	23	17	8	12	0	3	1
<i>Enterococcus faecium</i>	424	211	0	90	40	15	39	11	7	4	5	1	1
<i>Pseudomonas aeruginosa</i>	370	33	201	54	13	37	15	5	3	3	3	1	2
<i>Staphylococcus aureus</i>	249	10	98	21	16	91	0	3	2	0	5	0	3
<i>Staphylococcus epidermidis</i>	218	34	0	25	79	32	4	18	10	5	5	4	2
<i>Stenotrophomonas maltophilia</i>	208	13	114	37	4	11	17	0	4	5	0	2	1
<i>Enterococcus faecalis</i>	165	93	1	19	15	19	6	4	0	4	3	1	0
<i>Staphylococcus hominis</i>	140	8	0	4	108	5	0	11	1	0	0	1	2
<i>Enterobacter cloacae</i>	120	20	30	22	15	21	5	3	1	1	2	0	0
<i>Candida albicans</i>	114	27	4	37	11	17	7	9	1	0	0	0	1
<i>Proteus mirabilis</i>	103	61	12	6	6	14	3	1	0	0	0	0	0
<i>Streptococcus agalactiae</i>	83	31	3	0	2	14	0	0	0	0	1	0	32
<i>Candida parapsilosis</i>	71	8	1	10	37	3	3	5	1	0	1	1	1
<i>Staphylococcus haemolyticus</i>	60	10	0	13	16	11	3	1	2	0	1	2	1
<i>Acinetobacter pittii</i>	59	11	16	13	2	3	5	3	2	3	1	0	0
<i>Candida tropicalis</i>	55	21	4	6	16	4	0	3	0	1	0	0	0
<i>Chryseobacterium indologenes</i>	53	13	5	21	2	1	6	0	1	4	0	0	0
Other	732	156	125	122	113	96	53	15	13	11	13	9	6
Total	4 968	1 249	1 163	724	674	548	234	119	66	60	42	27	62

2.2 革兰氏阴性杆菌对抗菌药物的耐药情况

2.2.1 肠杆菌目:大肠埃希菌对哌拉西林他唑巴坦、头孢替坦、碳青霉烯类、阿米卡星、替加环素敏感>90%。肺炎克雷伯菌对碳青霉烯类药物耐药率17.7%,对阿米卡星及替加环素耐药率均>90%。阴沟肠杆菌对亚胺培南、美罗培南耐药率分别为26.7%、25.0%。大肠埃希菌、肺炎克雷伯菌及奇异变形杆菌ESBL分离率分别为55.4%、35.9%、38%。见表3。

2.2.2 非发酵菌:鲍曼不动杆菌对黏菌素及替加环素的敏感性>90%。铜绿假单胞菌除碳青霉烯类抗菌药物,其余耐药率均<30%,见表4。嗜麦芽窄食单胞菌对左氧氟沙星及米诺环素敏感率均>90%。产吡喹啉金黄色杆菌对复方新诺明及米诺环素敏感性>90%,其余耐药率均>90%。

2.3 革兰氏阳性菌对抗菌药物的耐药情况

2.3.1 葡萄球菌属:金黄色葡萄球菌MRSA分离率

15.6%,凝固酶阴性葡萄球菌MRCNS分离率79%。除复方新诺明,其余抗菌药物耐药率MRSA均高于MSSA。发现利奈唑胺耐药的凝固酶阴性葡萄球菌。见表5。

2.3.2 肠球菌属:屎肠球菌除四环素及利奈唑胺外,其余药物耐药率均高于粪肠球菌。屎肠球菌对万古霉素耐药率7.1%。粪肠球菌对利奈唑胺耐药率11.6%。见表6。

2.3.3 链球菌属:无乳链球菌对克林霉素耐药率>80%,左氧氟沙星及四环素耐药率>50%,未发现青霉素、氨苄西林、头孢曲松、利奈唑胺及万古霉素非敏感株。草绿色链球菌对红霉素及克林霉素耐药率均>80%,头孢曲松、头孢吡肟及左氧氟沙星耐药率均<10%,未发现青霉素、万古霉素及利奈唑胺耐药菌株。

2.4 真菌

表3 常见肠杆菌目细菌对抗菌药物的耐药率和敏感率 (%)
Tab.3 Resistance and sensitivity rates of *Enterobacteriaceae* to antibiotics (%)

Antibiotics	<i>Escherichia coli</i> (n = 648)		<i>Klebsiella pneumoniae</i> (n = 617)		<i>Enterobacter cloacae</i> (n = 120)		<i>Proteus mirabilis</i> (n = 103)		<i>Serratia marcescens</i> (n = 47)		<i>Klebsiella oxytoca</i> (n = 45)		<i>Enterobacter aerogenes</i> (n = 36)		<i>Citrobacter freundii</i> (n = 32)	
	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S
Ampicillin	80.1	18.0	-	-	-	-	62.7	36.3	-	-	-	-	-	-	-	-
Piperacillin	55.5	32.8	37.7	58.4	53.1	41.6	8.7	69.9	11.8	76.4	31.0	59.5	21.2	66.7	31.2	40.7
Amoxicillin/clavulanic acid	15.8	55.0	28.0	60.7	-	-	9.7	74.2	-	-	15.0	70.0	-	-	-	-
Cefoperazone/sulbactam	4.1	88.5	23.5	71.7	36.9	54.4	0	100	7.1	83.4	18.4	76.3	0	96.7	12.0	68.0
Piperacillin/tazobactam	2.2	94.3	20.3	76.9	25.8	58.4	0	100	4.9	85.3	4.4	86.7	5.6	80.5	-	-
Cefuroxime	57.1	39.3	38.3	59.3	67.8	15.7	50.5	46.6	-	-	25.0	63.6	39.4	48.5	-	-
Cefotetan	2.7	97.0	14.3	84.7	-	-	0	100	-	-	2.4	97.6	-	-	-	-
Ceftazidime	26.4	72.8	26.5	69.9	50.8	48.4	2.9	96.1	6.4	93.6	11.1	88.9	36.1	63.9	46.9	53.1
Ceftriaxone	55.4	44.6	36.6	63.4	56.9	42.2	35.0	65.0	26.8	68.3	22.2	77.8	42.9	57.1	46.9	53.1
Cefepime	19.8	72.6	24.5	73.7	35.8	52.5	1.9	83.5	6.4	87.2	6.7	93.3	11.1	86.1	9.4	87.5
Meropenem	1.9	97.8	17.7	81.8	25.0	73.3	1.0	99.0	6.4	93.6	4.4	95.6	-	97.2	6.2	93.8
Imipenem	1.9	97.9	17.7	82.1	26.7	69.1	-	-	8.3	91.7	4.4	95.6	5.6	72.2	6.5	90.3
Ciprofloxacin	72.2	22.6	40.7	54.6	46.7	46.6	60.2	37.9	8.5	91.5	28.9	71.1	30.6	55.5	28.1	68.8
Levofloxacin	66.6	12.2	28.8	52.2	28.3	40.0	37.3	33.3	8.5	85.1	22.2	68.9	5.6	50.0	18.8	62.4
Gentamicin	39.4	59.8	26.0	72.3	27.6	66.4	14.6	57.2	7.9	92.1	9.3	90.7	8.8	91.2	9.4	90.6
Tobramycin	16.5	58.6	18.7	66.5	25.8	61.7	6.8	63.1	4.3	78.7	4.4	88.9	8.3	83.4	0	87.5
Amikacin	2.3	97.4	4.9	95.1	9.2	90.0	1.0	99.0	0	100	0	100	0	100	0	100
Trimethoprim/sulfamethoxazole	58.5	41.5	25.2	74.8	34.2	65.8	54.4	45.6	0	100	24.4	75.6	30.6	69.4	25.0	75.0
Aztreonam	37.8	61.7	31.1	68.4	43.3	56.7	2.9	97.1	6.4	91.5	13.3	86.7	38.9	61.1	37.5	59.4
Nitrofurantoin	2.7	91.8	35.1	15.8	23.0	31.0	-	-	-	-	2.4	69.0	30.3	3.0	3.1	90.7
Tigecycline	0.5	99.0	2.1	94.5	0	89.1	-	-	-	-	-	-	-	-	-	-

R, resistance; S, sensitive.

白色念珠菌对氟康唑及伏立康唑敏感率>98%。热带念珠菌对三唑类(氟康唑、伏立康唑、伊曲康唑)耐药率>20%。近平滑念珠菌对三唑类(氟康唑、伏立康唑、伊曲康唑)耐药率<5%。

3 讨论

本研究分析了2022年沈阳市某三级甲等医院的抗菌药物耐药性,结果显示,该医院2022年共分离4 968株病原菌。病原菌78.7%(3 910/4 968)来自住院患者,21.3%(1 058/4 968)来自门诊患者,部分急诊患者来自急诊观察室及监护室。重症医学科主要以鲍曼不动杆菌分离为主,可能与送检以呼吸道标本为主且多数患者呼吸插管有关;器官移植科主要以尿肠球菌为主,与术后送检引流液为主有关;泌尿外科以大肠埃希菌为主,与其送检尿液为主有关,提示不同科室间菌株分布差异较大,应依据不同科室提供个性化的菌株分布甚至耐药性的

变化。菌株来源自尿液25.1%(1 249/4 968)、痰18.4%(912/4 968)、引流液14.6%(724/4 968)、血液13.5%(672/4 968)。病原菌中革兰氏阳性菌30.4%(1 509/4 968)、革兰氏阴性菌63.3%(3 145/4 968)、真菌6.3%(314/4 968)。分离前5位是大肠埃希菌,肺炎克雷伯菌,鲍曼不动杆菌,尿肠球菌及铜绿假单胞菌,这与CHINET 2021年金黄色葡萄球菌分离第3位不一致^[3],可能与2个研究的标本类型分布有一定关系。

本研究显示,分离菌以肠杆菌目细菌为主,其中主要包括大肠埃希菌、肺炎克雷伯菌、阴沟肠杆菌及奇异变形杆菌。虽然大肠埃希菌的ESBL分离率>50%,但是碳青霉烯类抗菌药物耐药率<2%。肺炎克雷伯菌碳青霉烯类抗菌药物耐药率>15%,这与相关研究^[4]一致。应注意阴沟肠杆菌碳青霉烯耐药>25%,远高于国内的相关研究^[3-4],且相关研究显示^[5]阴沟肠杆菌主要产NDM,限制了用于治疗CRE感染的头孢他啶阿维巴坦的使用。非发酵菌以鲍曼

表4 常见非发酵菌对抗菌药物的耐药率和敏感率 (%)

Tab.4 Resistance and sensitivity rates of common non-fermenting bacteria to antibiotics (%)

Antibiotics	<i>Acinetobacter baumannii</i> (n = 479)		<i>Pseudomonas aeruginosa</i> (n = 370)	
	R	S	R	S
Piperacillin	-	-	15.2	65.1
Piperacillin/tazobactam	87.4	11.3	8.7	69.2
Cefoperazone/sulbactam	47.7	15.2	8.1	77.3
Ceftazidime	85.2	13.5	13.1	73.5
Ceftriaxone	59.3	20.3	-	-
Cefepime	69.6	16.6	8.9	83.0
Imipenem	85.2	14.4	36.1	57.4
Meropenem	86.8	12.5	32.4	63.8
Ciprofloxacin	85.6	14.0	15.4	78.1
Levofloxacin	61.8	14.6	15.3	80.6
Gentamicin	80.6	18.8	8.6	88.1
Tobramycin	79.7	19.5	8.4	90.5
Amikacin	80.8	19.2	1.1	97.5
Aztreonam	-	-	23.1	55.1
Trimethoprim/sulfamethoxazole	74.9	25.1	-	-
Minocycline	4.2	72.6	-	-
Tigecycline	1.8	93.6	-	-
Colistin	0.9	97.2	-	-

R, resistance; S, sensitive.

表5 葡萄球菌属对抗菌药物的耐药率及敏感率 (%)

Tab.5 Resistance and sensitivity rates of *Staphylococcus* to antibiotics (%)

Antibiotics	MRSA (n = 39)		MSSA (n = 211)		MRCNS (n = 381)		MSCNS (n = 101)	
	R	S	R	S	R	S	R	S
Penicillin	100.0	0	82.0	18.0	100.0	0	81.1	17.8
Oxacillin	100.0	0	0	100.0	100.0	0	0	100.0
Gentamicin	12.8	87.2	7.1	87.2	19.2	72.4	2.0	95.0
Rifampin	0	100.0	0	99.5	7.2	90.5	1.0	98.0
Ciprofloxacin	28.2	71.8	19.9	76.3	66.3	23.9	16.0	76.0
Levofloxacin	25.6	71.8	19.9	78.2	74.8	24.4	20.8	77.2
Trimethoprim/sulfamethoxazole	10.3	89.7	30.3	69.7	58.3	41.7	26.3	73.7
Clindamycin	74.4	25.6	54.0	46.0	64.6	34.4	29.0	70.0
Erythromycin	82.1	17.9	69.2	30.8	87.9	10.3	68.3	30.7
Nitrofurantoin	0	100.0	0	100.0	1.1	98.2	1.0	98.0
Linezolid	0	100.0	0	100.0	3.7	96.3	0	100.0
Vancomycin	0	100.0	0	100.0	0	100.0	0	100.0
Teicoplanin	0	100.0	0	100.0	-	-	-	-
Tetracycline	33.3	66.7	11.4	88.6	21.8	76.8	12.9	87.1
Tigecycline	0	100.0	0	100.0	0	100.0	0	100.0

R, resistance; S, sensitive.

不动杆菌及铜绿假单胞菌为主,碳青霉烯耐药鲍曼不动杆菌分离率>80%远高于国内相关研究^[6]。铜绿假单胞菌除碳青霉烯类抗菌药物耐药率>30%,其余

均<30%,有良好活性。本研究显示,金黄色葡萄球菌MRSA分离率15.6%,低于相关研究^[7],这与临床医护人员注意手卫生有关。本研究分离到利奈唑胺耐药

表6 屎肠球菌和粪肠球菌对抗菌药物的耐药率和敏感率 (%)

Tab.6 Resistance and sensitivity rates of *Enterococcus faecium* and *Enterococcus faecalis* to antibiotics (%)

Antibiotics	<i>Enterococcus faecium</i> (n = 424)		<i>Enterococcus faecalis</i> (n = 165)	
	R	S	R	S
Penicillin	95.4	4.6	1.2	98.8
Ampicillin	94.8	5.2	0.6	99.4
Ciprofloxacin	94.1	4.7	41.8	55.2
Levofloxacin	94.0	5.3	42.4	55.2
Erythromycin	90.3	3.8	75.0	4.3
Nitrofurantoin	62.1	19.8	0.6	98.2
Streptomycin-high	52.2	47.8	30.4	69.6
Tetracycline	41.8	58.0	80.6	19.4
Gentamicin-high	34.6	65.2	53.1	46.9
Vancomycin	7.1	92.9	0	100.0
Teicoplanin	5.3	94.7	0	98.3
Linezolid	1.2	98.8	11.6	85.4
Tigecycline	0	100.0	0	100.0

R, resistance; S, sensitive.

凝固酶阴性葡萄球菌,与国外研究^[8]结果一致,但分离率略高,本研究中菌株主要来自血培养,但均为单个培养瓶阳性,认为污染概率大,不会影响患者治疗,但应注意护士规范采血培训及管理。应注意万古霉素耐药屎肠球菌(7.1%)及利奈唑胺耐药粪肠球菌(11.6%)均高于国内相关研究^[3]。本研究还发现,非白色念珠菌的分离率超过白色念珠菌,且高于国内研究^[9],这与该医院以无菌体液送检为主有一定关系。热带念珠菌对三唑类抗菌药物的耐药率>20%,这与国内其他研究^[9]一致,应增加棘白菌素等药物的检测,以供临床参考。

综上所述,本研究数据显示,沈阳市某三级甲等医院病原菌分布及耐药性与国内其他地区监测结果存在差异,有必要进行本院菌株的耐药监测,以及时了解病原菌分布及耐药情况,为抗感染诊治提供依据。

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