doi: 10.13241/j.cnki.pmb.2017.16.026

来曲唑联合二甲双胍对多囊卵巢综合征患者血清胃生长素、性激素及血脂水平的影响及其临床疗效*

王金英[1] 罗 涛[2] 王晓霞[1] 刘桂丽[1] 朱延峰[1]

（1 沈阳市第七人民医院妇科 辽宁 沈阳 110003；2 中国医科大学附属第四医院妇产科 辽宁 沈阳 110010）

摘要 目的：探讨来曲唑与二甲双胍治疗多囊卵巢综合征的临床效果及对患者血清胃生长素（ghrelin）、性激素及血脂水平的影响。**方法：**选择多囊卵巢综合征患者90例，均于2014年7月至2016年7月在本院接受治疗。根据治疗方法不同，将所选研究对象分为研究组与对照组，每组45例。对照组患者采用盐酸二甲双胍治疗，研究组患者在对照组基础上采用来曲唑片治疗。观察并比较两组患者治疗前后血清胃生长素（ghrelin）、卵泡刺激素（FSH）、黄体生成素（LH）、雌二醇（E2）、睾酮（T）、总胆固醇（TC）、甘油三酯（TG）、低密度脂蛋白（LDL-C）及高密度脂蛋白（HDL-C）水平，以及临床疗效。**结果：**研究组患者临床总有效率（88.9%）高于对照组（71.1%），差异具有统计学意义（P<0.05）；两组患者治疗后血清 ghrelin 水平均升高，且研究组高于对照组，差异具有统计学意义（P<0.05）；两组患者治疗后血清 LH，E2 及 T 水平均降低，且研究组低于对照组，差异具有统计学意义（P<0.05）；两组患者治疗后血清 FSH 水平比较，差异无统计学意义（P>0.05）；治疗后两组患者血清 HDL-C 水平均升高，且研究组高于对照组，差异具有统计学意义（P<0.05）；治疗后两组患者血清 LDL-C，TC 及 TG 水平均降低，且研究组低于对照组，差异具有统计学意义（P<0.05）。**结论：**来曲唑联合二甲双胍治疗多囊卵巢综合征具有明显的临床效果，不仅可以改善患者卵巢功能及高雄激素状态，还能缓解患者高血脂症状，值得临床推广应用。

关键词：多囊卵巢综合征；来曲唑；胃生长素

中图分类号：R711.75 **文献标识码：**A **文章编号：**1673-6273(2017)16-3103-04

Effects of Letrozole and Metformin on Serum Levels of Ghrelin, Sex Hormones and Blood Lipids of Patients with Polycystic Ovary Syndrome and Its Clinical Efficacy*

WANG Jin-ying[1], LUO Tao[2], WANG Xiao-xia[1], LIU Gui-li[1], ZHU Yan-feng[1]

(1 Department of Gynecology, the Seventh People's Hospital, Shenyang, Liaoning, 110003, China; 2 Department of Gynecology and Obstetrics, the Fourth Affiliated Hospital of China Medical University, Shenyang, Liaoning, 110010, China)

ABSTRACT Objective: To investigate the clinical effect of letrozole and metformin on serum levels of ghrelin, sex hormones and blood lipids of patients with polycystic ovary syndrome (PCOS) and its clinical efficacy. **Methods:** 90 patients with polycystic ovary syndrome who were treated in our hospital from July 2014 to July 2016 were selected and according to the different treatment methods, the patients were divided into the study group and the control group, with 45 cases in each group. The patients in the control group were treated with metformin hydrochloride, while the patients in the study group were treated with letrozol on the basis of the control group. Then serum levels of ghrelin, follicle stimulating hormone (FSH) and luteinizing hormone (LH), estradiol (E2), testosterone (T), total cholesterol (TC), triglyceride (TG), low density lipoprotein (LDL-C) and high density lipoprotein (HDL-C) and clinical efficacy between the two groups were observed and compared before and after the treatment. **Results:** The total effective rate in the study group was 88.9%, which was higher than 71.1% in the control group, and the difference was statistically significant (P<0.05); The serum levels of ghrelin of patients in the two groups increased after the treatment, and the study group was higher than that of the control group, and the differences were statistically significant (P<0.05); The serum levels of LH, E2 and T in the two groups decreased after the treatment, and the study group was lower than that of the control group, and the differences were statistically significant (P<0.05); There was no statistically significant difference about the FSH after treatment between the two groups (P>0.05); The serum levels of HDL-C in the two groups increased after the treatment, and the study group was higher than that of the control group, and the differences were statistically significant (P<0.05); The serum levels of LDL-C, TC and TG decreased in the two groups after the treatment, and the study group was lower than that of the control group, and the differences were statistically significant (P<0.05). **Conclusion:** Letrozole and metformin has obvious clinical effect om the treatment of polycystic ovary syndrome, which can improve the ovarian functions and hormonal status of kaohsiung, and relief the symptoms of hyperlipidemia, and it is worthy of clinical application.

* 基金项目：辽宁省科技厅计划项目(2013226012)

作者简介：王金英（1973-），女，本科，主治医师，研究方向：妇科疾病的诊治

（收稿日期：2017-01-02 接受日期：2017-01-20）

Key words: Polycystic ovary syndrome; Letrozole; Ghrelin
Chinese Library Classification(CLC): R711.75 Document code: A
Article ID: 1673-6273(2017)16-3103-04

前言

多囊卵巢综合征(Polycystic ovary syndrome, PCOS)属于代谢紊乱综合征,多见于育龄期女性,临床主要表现为闭经、不孕、多毛、胰岛素抵抗以及高脂血症等代谢异常[1]。目前研究尚未明确多囊卵巢综合征的发病机制,但普遍认为其与遗传、环境、激素紊乱等因素有关[2]。来曲唑(Letrozole)是临床常用的非甾体类芳香化酶抑制剂,可有效改善机体对雌激素的过度依赖;二甲双胍(Metformin)是临床常用的降糖降脂药物,具有可靠的治疗效果及较高的安全性。近年来研究表明,来曲唑与二甲双胍联用能够改善多囊卵巢综合征患者的卵巢功能,调节内分泌异常状态,并且具有降低血脂的作用[3]。因此,本研究通过观察上述两种药物对患者血清胃生长素(Ghrelin)、性激素及血脂水平的影响,探讨来曲唑与二甲双胍治疗多囊卵巢综合征的临床效果,现将相关结果报道如下。

1 资料与方法

1.1 临床资料

选择多囊卵巢综合征患者 90 例。均于 2014 年 7 月至 2016 年 7 月在本院接受治疗,入选研究对象均符合欧洲人类生殖与胚胎学会制定的诊断标准;年龄均≤ 40 周岁;排除合并甲状腺疾病、高泌乳素血症等其他内分泌系统疾病者;排除近三个月内服用激素、胰岛素、糖脂代谢等药物者;排除合并心、肝、肾等功能严重障碍者。根据治疗方法不同,将所选研究对象分为研究组与对照组,每组 45 例。其中,研究组患者年龄为 24-37 岁,平均年龄(28.7± 2.2)岁;不孕年限 3-7 年,平均(4.8± 0.9)年;体重指数(BMI)为 22-24 kg/m^2,平均(23.25± 0.81) kg/m^2;对照组患者年龄为 24-38 岁,平均年龄(26.2± 3.1)岁,不孕年限 4-9 年,平均(5.2± 0.8)年;体重指数(BMI)为 22-25 kg/m^2,平均(24.5± 0.6)kg/m^2。两组患者的临床资料具有可比性(P>0.05),差异无统计学意义。

1.2 方法

对照组患者口服盐酸二甲双胍缓释片(规格 0.5 g,国药准字 H20023370),0.5 g/ 次,2 次 /d。研究组患者在对照组基础上口服来曲唑片(江苏恒瑞医药股份有限公司生产,国药准字 H19991001,规格 2.5 mg),于月经周期第 3-7 天治疗,2.5 mg/d。

1.3 疗效评价

显效:卵巢功能基本正常,连续两个月以上正常周期排卵,月经规律≥ 三个月;有效:卵巢功能得到改善,月经规律≥ 三个月,偶有排卵;无效:月经紊乱现象未改善,排卵功能未恢复正常。

1.4 观察指标及检测方法

1.4.1 血清 Ghrelin 水平检测 两组患者均于治疗前后空腹抽取静脉血 4 mL,室温静置 30 min,以 3600 r/min 离心 15 min,取上清,置于 -80 ℃冰箱中保存。采用酶联免疫吸附法(ELISA)检测患者血清胃生长素(Ghrelin)水平。试剂盒购自美国 R&D 公司(序列号 DZE11960),严格按照试剂盒说明书进行操作。

1.4.2 血清雌激素水平检测 两组患者均于治疗前后空腹抽取静脉血 4 mL,室温静置 30 min,以 3600 r/min 离心 15 min,取上清,置于 -80 ℃冰箱中保存。采用化学发光法检测患者卵泡刺激素(Follicle Stimulating Hormone, FSH)、黄体生成素(Luteinizing Hormone, LH)、雌二醇(Estradiol, E2)及睾酮(Testosterone, T)水平。全自动化学发光仪购自美国贝克曼库尔特公司(型号 DXI800)。

1.4.3 血脂水平检测 两组患者均于治疗前后空腹抽取静脉血 4 mL,室温静置 30 min,以 3600 r/min 离心 15 min,取上清,置于 -80 ℃冰箱中保存。采用过氧化物酶法检测总胆固醇(Total Cholesterol, TC)水平;采用脂蛋白脂酶法检测甘油三酯(Triglyceride, TG)水平;采用直接一步法检测低密度脂蛋白(Low Density Lipoprotein Cholesterol, LDL-C)及高密度脂蛋白(High Density Lipoprotein Cholesterol, HDL-C)水平。

1.5 统计学分析

所有数据均采用 SPSS17.0 软件进行分析,计量资料采用均数± 标准差表示,对比采用 t 检验,计数资料采用百分率表示,予以卡方检验,P<0.05 认为差异具有统计学意义。

2 结果

2.1 两组患者的临床疗效比较

研究组患者临床总有效率为 88.9%(40/45),对照组患者临床总有效率为 71.1%(32/45);研究组临床总有效率高于对照组(P<0.05)。见表 1。

表 1 两组患者的临床疗效比较

Table 1 Comparison of clinical efficacy between the two groups

Groups	Excellent	Effective	Invalid	Total effective rate
Study group (n=45)	21(46.7%)	19(42.2%)	5(11.1%)	88.9%(40/45)*
Control group (n=45)	13(28.9%)	19(42.2%)	13(28.9%)	71.1%(32/45)

Note: compared with control group, *P<0.05.

2.2 两组患者治疗前后血清 Ghrelin 水平比较

两组患者治疗前血清 Ghrelin 水平比较,差异无统计学意义(P>0.05);两组患者治疗后血清 Ghrelin 水平均升高,且研究组高于对照组(P<0.05)。见表 2。

2.3 两组患者治疗前后血清性激素水平比较

两组患者治疗后血清 LH,E2 及 T 水平均低于治疗前,并

且研究组低于对照组(P<0.05);两组患者治疗后血清 FSH 差异无统计学意义(P>0.05)。见表 3。

2.4 两组患者治疗前后血脂水平比较

治疗后两组患者血清 HDL-C 水平均升高，且研究组高于对照组;而 LDL-C,TC 及 TG 水平均降低,且研究组低于对照组(P<0.05)。见表 4。

表 2 两组患者治疗前后血清 Ghrelin 水平比较

Table 2 Comparison of serum levels of ghrelin between the two groups before and after treatment

Groups	Time	Ghrelin
Study group (n=45)	Before treatment	251.3± 29.8
	After treatment	316.5± 41.2*#
Control group (n=45)	Before treatment	260.1± 26.4
	After treatment	301.8± 40.6*

Note: compared with before treatment, *P<0.05; compared with control group after treatment, #P<0.05.

表 3 两组患者治疗前后血清性激素水平比较

Table 3 Comparison of serum levels of sex hormone between the two groups before and after treatment

Groups	Time	LH (mIU/mL)	E2 (pg/L)	FSH (ng/mL)	T (ng/dl)
Study group (n=45)	Before treatment	11.3± 1.8	1203.2± 198.4	0.69± 0.1	0.9± 0.2
	After treatment	8.6± 1.6*#	409.7± 21.3*#	0.64± 0.5	0.7± 0.9*#
Control group (n=45)	Before treatment	10.8± 1.5	1193.6± 200.3	0.68± 1.3	0.9± 0.5
	After treatment	9.2± 1.1*	451.7± 22.4*	0.65± 1.4	0.8± 0.3*

Note: compared with before treatment, *P<0.05; compared with control group after treatment, #P<0.05.

表 4 两组患者治疗前后血脂水平比较($\bar{x}\pm s$)

Table 4 Comparison of blood lipids of patients between the two groups before and after the treatment($\bar{x}\pm s$)

Groups	n	Time	TC	TG	LDL-C	HDL-C
Study group	45	Before treatment	6.8± 0.3	4.6± 0.8	4.3± 0.9	1.1± 0.9
		After treatment	3.3± 0.2*#	2.1± 0.7*#	2.2± 0.9*#	1.3± 0.8*#
Control group	45	Before treatment	6.7± 0.4	4.5± 0.5	4.4± 0.8	1.1± 0.7
		After treatment	3.9± 0.5*	3.0± 0.1*	3.1± 0.1*	1.4± 0.5*

Note: compared with before treatment, * P <0.05; compared with control group after treatment, #P <0.05.

3 讨论

来曲唑属于第三代非甾体类芳香化酶抑制剂,可有效抑制芳香化酶活性,减少雄激素转化为雌激素,从而降低血清雌激素水平[4]。有研究发现,来曲唑能够促进垂体分泌促性腺激素,刺激卵泡发育及成熟[5]。也有研究显示,来曲唑能够阻碍雄激素的转化,刺激卵巢局部暂时性雄激素水平的升高[6]。还有研究表明,来曲唑可以促进 FSH 受体表达,提高胰岛素样生长因子水平,增强卵泡的敏感性,进而促进卵泡的成熟及排出[7]。此外,来曲唑具有半衰期短、无结合雌激素受体的特点,能够促进卵泡晚期雌激素与雌激素受体结合,改善宫颈粘液状态及子宫内血流,促进子宫内膜间质及上皮细胞增殖[8]。二甲双胍为降血糖药,可以通过抑制肝糖原异生作用降低肝糖原输出率,增加胰岛素的敏感性及对葡萄糖的利用率[9]。相关研究表明,二甲双胍能够降低肠壁细胞对葡萄糖的摄取速度,增加脑、皮肤、肾髓质等组织对葡萄糖的利用率[10]。还有研究显示,二甲双胍不仅能够抑制肝糖原生成,还可以降低胰岛素抵抗,加快无氧代谢[11]。本研究结果显示,研究组患者临床总有效率(88.9%)显著高于对照组(71.1%),差异具有统计学意义(P<0.05)。结果说明,来曲唑联合二甲双胍治疗多囊卵巢综合征的临床效果显著,能够改善患者病情,进而提高生活质量。

Ghrelin 是一种胃肠道分泌生成的内源性脑肠肽,由 28 个氨基酸组成,具有生长激素释放活性,并且与食欲调节、能量平衡、代谢紊乱、胃肠功能以及细胞增殖等多种生理功能有关[12]。近年来研究发现,ghrelin 对生殖激素、性腺、胎儿发育及妊娠等生理过程均具有一定影响，并且 ghrelin 及其受体广泛存在于生殖轴中,提示其对生殖功能具有重要的调节作用[13]。也有研究表明,Ghrelin 基因是女性卵巢功能调控机制中的重要调控因子之一[14]。还有研究显示,Ghrelin 可以抑制卵巢过度分泌 E2 及孕酮，并且 Ghrelin 在多囊卵巢综合征患者中呈显著的低表达[15]。因此,有效控制多囊卵巢综合征患者血清 Ghrelin 水平对于改善卵巢功能具有重要意义。本研究结果显示,两组患者治

疗前血清 Ghrelin 水平比较，差异无统计学意义（P>0.05）；两组患者治疗后血清 Ghrelin 水平均升高，且研究组高于对照组，差异具有统计学意义（P<0.05）。结果说明，来曲唑联合二甲双胍能够提高多囊卵巢综合征患者血清 Ghrelin 水平，改善卵巢功能。

多囊卵巢综合征的主要表现是患者性激素水平分泌异常，FSH 能促进卵泡发育并分泌雌激素，而 LH 可刺激卵巢黄体分泌孕激素，促进子宫内膜细胞增生[16]。有研究表明，高雄激素血症可导致卵巢内卵泡发育障碍、卵泡膜细胞核基质成分增多，从而分泌过多的雄激素，最终导致恶性循环[17]。还有研究显示，卵巢功能障碍导致多囊卵巢综合征患者 LH 水平上升，FSH 水平正常或者偏低，最终 LH/FSH 比值增高[18]。因此，改善多囊卵巢综合征患者性激素紊乱有利于提高临床疗效。相关研究表明，来曲唑能明显降低多囊卵巢综合症患者血清 E2 水平，改善激素异常状态[19]。本研究结果显示，两组患者治疗前血清性激素水平比较，差异无统计学意义（P>0.05）；两组患者治疗后血清 LH，E2 及 T 水平均低于治疗前，并且研究组低于对照组（P<0.05）。结果说明，来曲唑联合二甲双胍能够降低多囊卵巢综合征患者血清 LH，E2 及 T 水平，改善高雄激素状态，从而提高临床疗效。

多囊卵巢综合征患者的主要临床特征是脂代谢紊乱，主要表现为肥胖、痤疮以及高脂血症[20]。因此，有效降低多囊卵巢综合征患者血脂水平对于改善临床症状具有重要意义。本研究结果显示，治疗后两组患者血清 HDL-C 水平均升高，且研究组高于对照组，差异具有统计学意义（P<0.05）；而 LDL-C，TC 及 TG 水平均降低，且研究组低于对照组，差异具有统计学意义（P<0.05）。结果说明，来曲唑联合二甲双胍能够降低多囊卵巢综合征患者 LDL-C，TC 及 TG 水平，同时提高 HDL-C 水平，从而改善患者高血脂症状，促进临床疗效。

综上所述，来曲唑联合二甲双胍治疗多囊卵巢综合征具有明显的临床效果，不仅可以提高患者血清 Ghrelin 水平，降低 LH，E2 及 T 水平，进而改善卵巢功能及高雄激素状态，还能降低患者 LDL-C，TC 及 TG 水平，同时提高 HDL-C 水平，从而改善患者高血脂症状，值得临床推广应用。

参 考 文 献（References）

[1] Li J, Ng EH, Stener-Victorin E, et al. Comparison of acupuncture pretreatment followed by letrozole versus letrozole alone on live birth in anovulatory infertile women with polycystic ovary syndrome: a study protocol for a randomised controlled trial [J]. BMJ Open, 2016, 6(10): e010955

[2] Seyedoshohadaei F, Tangestani L, Zandvakili F, et al. Comparison of the Effect of Clomiphene- Estradiol Valerate vs Letrozole on Endometrial Thickness, Abortion and Pregnancy Rate in Infertile Women with Polycystic Ovarian Syndrome [J]. J Clin Diagn Res, 2016, 10(8): QC10-3

[3] Maliszewska M, Maciek-Jurczyk M, Poycka J, et al. Fluorometric Investigation on the Binding of Letrozole and Resveratrol with Serum Albumin[J]. Protein Pept Lett, 2016, 23(10): 867-877

[4] Yang R, Li H, Li R, et al. A comparison among different methods of letrozole combined with gonadotropin in an antagonist protocol and high-dose gonadotropin ovarian stimulation antagonist protocol in poor ovarian responders undergoing in vitro fertilization [J]. Arch Gynecol Obstet, 2016, 294(5): 1091-1097

[5] Bjelica A, Trnini-Pjevi A, Mladenovi-Segedi L, et al. Comparison of the efficiency of clomiphene citrate and letrozole in combination with metformin in moderately obese clomiphene citrate-resistant polycystic ovarian syndrome patients [J]. Srp Arh Celok Lek, 2016, 144(3-4): 146-150

[6] Santoro N, Eisenberg E, Trussell JC, et al. Fertility-related quality of life from two RCT cohorts with infertility: unexplained infertility and polycystic ovary syndrome[J]. Hum Reprod, 2016, 31(10): 2268-2279

[7] Wu XK, Wang YY, Liu JP, et al. Randomized controlled trial of letrozole, berberine, or a combination for infertility in the polycystic ovary syndrome[J]. Fertil Steril, 2016, 106(3): 757-765.e1

[8] Bastu E, Buyru F, Ozsurmeli M, et al. A randomized, single-blind, prospective trial comparing three different gonadotropin doses with or without addition of letrozole during ovulation stimulation in patients with poor ovarian response [J]. Eur J Obstet Gynecol Reprod Biol, 2016, 203: 30-34

[9] Lian Y, Zhao F, Wang W. Central leptin resistance and hypothalamic inflammation are involved in letrozole-induced polycystic ovary syndrome rats [J]. Biochem Biophys Res Commun, 2016, 476(4): 306-312

[10] Soumya V, Muzib YI, Venkatesh P. A novel method of extraction of bamboo seed oil (Bambusa bambos Druce) and its promising effect on metabolic symptoms of experimentally induced polycystic ovarian disease[J]. Indian J Pharmacol, 2016, 48(2): 162-167

[11] Hansen KR, He AL, Styer AK, et al. Predictors of pregnancy and live-birth in couples with unexplained infertility after ovarian stimulation-intrauterine insemination [J]. Fertil Steril, 2016, 105(6): 1575-1583.e2

[12] Bell T, Crown JP, Lang I, et al. Impact of palbociclib plus letrozole on pain severity and pain interference with daily activities in patients with estrogen receptor-positive/human ep idermal growth factor receptor 2-negative advanced breast cancer as first-line treatment[J]. Curr Med Res Opin, 2016, 32(5): 959-965

[13] Dneas A, Cucola C, Lenghel LM, et al. Letrozole vs estradiol valerate induced PCOS in rats: glycemic, oxidative and inflammatory status assessment[J]. Reproduction, 2016, 151(4): 401-409

[14] Li D, Li C, Xu Y, et al. Differential Expression of microRNAs in the Ovaries from Letrozole-Induced Rat Model of Polycystic Ovary Syndrome[J]. DNA Cell Biol, 2016, 35(4): 177-83

[15] Kelley ST, Skarra DV, Rivera AJ, et al. The Gut Microbiome Is Altered in a Letrozole-Induced Mouse Model of Polycystic Ovary Syndrome[J]. PLoS One, 2016, 11(1): e0146509

[16] El-khayat W, Abdel Moety G, Al Mohammady M, et al. A randomized controlled trial of clomifene citrate, metformin, and pioglitazone versus letrozole, metformin, and pioglitazone for clomifene-citrate-resistant polycystic ovary syndrome [J]. Int J Gynaecol Obstet, 2016, 132(2): 206-209

[17] Azra A, Pejman M M, Akbari A F, et al. Effects of letrozole-HMG and Clomiphene-HMG on Incidence of Luteinized Unruptured Follicale Syndrome in Infertile Women Undergoing Induction Ovulation and Intrauterine Insemination: A Randomised Trial [J]. Global Journal of Health Science, 2015, 8(4): 244-252

（下转第 3151 页）

敏结果选择适宜的药物进行治疗。

综上所述,耐亚胺培南鲍曼不动杆菌临床分布广泛,多重耐药性严重甚至出现泛耐药,应当对患者进行药敏试验,以药敏结果选择合适的抗菌药物进行使用。

参 考 文 献(References)

[1] Ni S, Li S, Yang N, et al. Post-neurosurgical meningitis caused by *acinetobacter baumannii*: case series and review of the literature[J]. Int J Clin Exp Med, 2015, 8(11): 21833-21838

[2] Yang DK, Liang HJ, Gao HL, et al. Analysis of drug-resistant gene detection of blaOXA-like genes from *Acinetobacter baumannii*[J]. Genet Mol Res, 2015, 14(4): 18999-19004

[3] Xiao SZ, Chu HQ, Han LZ, et al. Resistant mechanisms and molecular epidemiology of imipenem-resistant *Acinetobacter baumannii*[J]. Mol Med Rep, 2016, 14(3): 2483-2488

[4] Yava§ S, Yetkin MA, Kayaaslan B, et al. Investigating the in vitro synergistic activities of several antibiotic combinationsagainst carbapenem-resistant *Acinetobacter baumannii* isolates [J]. Turk J Med Sci, 2016, 46(3): 892-896

[5] Dhabaan GN, AbuBakar S, Cerqueira GM, et al. Imipenem Treatment Induces Expression of Important Genes and Phenotypes in a Resistant*Acinetobacter baumannii* Isolate [J]. Antimicrob Agents Chemother, 2015, 60(3): 1370-1376

[6] 史发林,田海萍,孙晓梅,等.某医院常见细菌分离的变迁调查[J].甘肃医药, 2016, 35(01): 16-18
Shi Fa-lin, Tian Hai-ping, Sun Xiaomei, et al. Isolation of commonly bacteria and changing status in a hospital [J]. Gansu Medical Journal, 2016, 35(01): 16-18

[7] Mahboubi A, Kamalinejad M, Ayatollahi AM, et al. Total Phenolic Content and Antibacterial Activity of Five Plants of Labiatae against Four Foodborne and Some Other Bacteria[J]. Iran J Pharm Res, 2014, 13(2): 559-566

[8] Ramí rez MS, Mü ller GL, Pé rez JF, et al. More Than Just Light: Clinical Relevance of Light Perception in the Nosocomial Pathogen*Acinetobacter baumannii* and Other Members of the Genus Acinetobacter[J]. Photochem Photobiol, 2015, 91(6): 1291-1301

[9] Tuon FF, Rocha JL, Merlini AB. Combined therapy for multi-drug-resistant *Acinetobacter baumannii* infection--is there evidence outside the laboratory?[J]. J Med Microbiol, 2015, 64(9): 951-959

[10] Lahmer T, Messer M, Schnappauf C, et al. *Acinetobacter baumannii* sepsis is fatal in medical intensive care unit patients: six cases andreview of literature[J]. Anaesth Intensive Care, 2014, 42(5): 666-668

[11] Mü ller S, Janssen T, Wieler LH. Multidrug resistant *Acinetobacter baumannii* in veterinary medicine--emergence of an underestimated pathogen?[J]. Berl Munch Tierarztl Wochenschr, 2014, 127(11-12): 435-446

[12] Kamolvit W, Sidjabat HE, Paterson DL. Molecular Epidemiology and Mechanisms of Carbapenem Resistance of Acinetobacter spp. in Asia and Oceania[J]. Microb Drug Resist, 2015, 21(4): 424-434

[13] Ni W, Han Y, Zhao J, et al. Tigecycline treatment experience against multidrug-resistant *Acinetobacter baumannii* infections: a systematic review and meta-analysis [J]. Int J Antimicrob Agents, 2016, 47(2): 107-116

[14] Chu H, Zhao L, Wang M, et al. Sulbactam-based therapy for *Acinetobacter baumannii* infection: a systematic review and meta-analysis[J]. Braz J Infect Dis, 2013, 17(4): 389-394

[15] 杨伟业,吴秀荣,杨华,等.165 株耐亚胺培南鲍曼不动杆菌的临床分布及耐药性研究[J].中国实用医药, 2012, 07(08): 28-29
Yang Wei-ye, Wu Xiu-rong, Yang Hua, et al. Distribution and drug resistance of 165 imipenem resistant Acinetobacter Bauman[J]. China Practical Medical, 2012, 07(08): 28-29

[16] Gao J, Zou Y, Wang Y, et al. Breath analysis for noninvasively differentiating *Acinetobacter baumannii* ventilator-associated pneumonia from its respiratory tract colonization of ventilated patients[J]. J Breath Res, 2016, 10(2): 027102

[17] Fitzpatrick MA, Ozer EA, Hauser AR. Utility of Whole-Genome Sequencing in Characterizing Acinetobacter Epidemiology and Analyzing Hospital Outbreaks [J]. J Clin Microbiol, 2016, 54(3): 593-612

[18] Qian Y, Dong X, Wang Z, et al. Distributions and Types of Multidrug-Resistant *Acinetobacter baumannii* in Different Departments of a General Hospital [J]. Jundishapur J Microbiol, 2015, 8(9): e22935

[19] 赵建平, 周秀岚. 对亚胺培南耐药鲍曼不动杆菌的耐药性监测[J].中国综合临床, 2014, 30(5): 472-474
Zhao Jian-ping, Zhou Xiu-lan. The drug resistance surveillance of bauman *acinetobacter baumannii* resisted to imipenem [J]. Clinical Medicine of China, 2014, 30(5): 472-474

[20] Koomanachai P, Tongsai S, Thamlikitkul V. Effectiveness and Safety of Generic Formulation ofCefoperazone/Sulbactam (Bacticep®) in Treatment of Infections at Siriraj Hospital [J]. J Med Assoc Thai, 2016, 99(1): 8-14

(上接第 3106 页)

[18] Cassar S, Misso ML, Hopkins WG, et al. Insulin resistance in polycystic ovary syndrome: a systematic review and meta-analysis of euglycaemic-hyperinsulinaemic clamp studies[J]. Hum Reprod, 2016, 31(11): 2619-2631

[19] Park CH, Chun S. Association between serum gonadotropin level and insulin resistance-related parameters in Korean women with polycystic ovary syndrome[J]. Obstet Gynecol Sci, 2016, 59(6): 498-505

[20] 王文娟, 吴海波, 杨琴, 等. PCOS 患者外周血白细胞计数变化的临床意义[J]. 现代生物医学进展, 2016, 16(31): 6118-6120
Wang Wen-juan, Wu Hai-bo, Yang Qin, et al. Clinical Significance of Changes of Peripheral Leukocytes Count in Patients with PCOS[J]. Progress in Modern Biomedicine, 2016, 16(31): 6118-6120