

# 肥胖型多囊卵巢综合征的中西医治疗研究进展

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## 摘要

多囊卵巢综合征(Polycystic Ovary Syndrome, PCOS)是一种常见的妇科内分泌疾病, 在育龄期女性中发病率约为6%~13%。PCOS 的临床表现复杂多样, 如月经紊乱、不孕等生殖系统症状, 以及肥胖、胰岛素抵抗等代谢异常表现。肥胖不仅加重 PCOS 的症状, 远期还可增加糖尿病以及心血管疾病的发病风险。近年来, 随着对 PCOS 与肥胖之间关系的深入研究, 对 PCOS 肥胖的治疗方法也在不断优化, 本文通过对相关研究的阅读及分析, 探讨肥胖型 PCOS 的中西医治疗最新研究进展, 旨在为临床实践提供更新的参考, 以期改善肥胖型 PCOS 患者的生育及代谢健康状况。

## 关键词

多囊卵巢综合征, 肥胖, 西医治疗, 中医治疗, 治疗进展

# Research Progress on the Treatment of Obesity-Related Polycystic Ovary Syndrome with Traditional Chinese and Western Medicine

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## Abstract

Polycystic Ovary Syndrome (PCOS) is one of the most prevalent endocrine disorders affecting

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women of reproductive age, with epidemiological studies indicating a global prevalence ranging from 6% to 13%, depending on diagnostic criteria and population characteristics. It is characterized by a triad of clinical features: chronic anovulation, hyperandrogenism, and polycystic ovarian morphology observed via ultrasound. Beyond these core manifestations, PCOS is frequently accompanied by a range of metabolic disturbances, among which obesity stands out as both a common comorbidity and a significant exacerbating factor. Approximately 40% to 80% of women diagnosed with PCOS are overweight or obese, particularly exhibiting central adiposity, which further intensifies insulin resistance, dyslipidemia, and systemic inflammation—key contributors to long-term complications such as type 2 diabetes, cardiovascular disease, and non-alcoholic fatty liver disease. The interplay between obesity and PCOS creates a vicious cycle: excess body weight worsens hormonal imbalances and ovulatory dysfunction, while the underlying pathophysiology of PCOS, including hyperinsulinemia and altered adipokine secretion, promotes fat accumulation and makes weight loss more challenging. Given this bidirectional relationship, effective management of obesity has become a cornerstone in the treatment strategy for PCOS, aiming not only to improve fertility outcomes but also to mitigate metabolic risks. This article, through reading and analyzing relevant research, explores the latest research progress in the treatment of obese PCOS with both traditional Chinese and Western medicine, aiming to provide updated references for clinical practice and improve the reproductive and metabolic health of obese PCOS patients.

## Keywords

Polycystic Ovary Syndrome, Obesity, Western Medical Treatment, Traditional Chinese Medical Treatment, Treatment Progress

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## 1. 引言

多囊卵巢综合征(Polycystic Ovary Syndrome, PCOS)是一种常见的妇科内分泌代谢性疾病,影响着从青春期到更年期几乎全年龄层的女性。PCOS 以高雄激素血症、稀发排卵或无排卵以及多囊卵巢形态为特征,常与肥胖、胰岛素抵抗和代谢综合征等代谢异常有关[1][2]。相关研究显示,肥胖与 PCOS 之间存在密切关系,一方面,肥胖会加剧 PCOS 的内分泌紊乱和代谢异常;另一方面,PCOS 本身也会进一步导致体重增加和代谢紊乱,形成恶性循环[3]。

## 2. 肥胖型多囊卵巢综合征发病机制

### 2.1. 西医发病机制

西医认为,肥胖型 PCOS 的病因涉及遗传、环境及内分泌等多种因素,其核心发病机制是肥胖与内分泌及代谢紊乱的双向恶性循环,在遗传易感性基础上,肥胖进一步加剧了病理进程[4][5]。

胰岛素抵抗(Insulin Resistance, IR)是 PCOS 发病机制中的一个关键因素,中心性肥胖(又称腹型肥胖)可导致 IR,降低身体细胞对胰岛素的敏感性,胰岛素对肝脏葡萄糖输出的抑制作用减弱,进而导致高胰岛素血症,而过多的胰岛素可刺激卵巢分泌过多雄激素,引起高雄激素血症,同时抑制肝脏合成性激素结合球蛋白(sex hormone binding globulin, SHBG),使血液中游离雄激素水平升高,扰乱卵泡发育和成熟的过程[6][7]。

肥胖患者的脂肪组织会产生大量的炎症因子和脂肪因子,这些因子会引发身体慢性低度炎症反应,

进一步加重胰岛素抵抗和内分泌紊乱。此外,肥胖还会影响下丘脑-垂体-卵巢轴(HPO轴)的功能,进一步刺激卵巢合成和分泌雄激素[8]。

有PCOS、糖尿病、肥胖家族史的患者遗传易感性更高,而长期不良的生活习惯会加重肥胖和胰岛素抵抗,形成“肥胖-胰岛素抵抗-激素紊乱-更难减重”的恶性循环[9]。

近年来的研究还发现,肥胖型PCOS患者存在明显的肠道菌群紊乱,肠道微生物多样性显著降低,厚壁菌门与拟杆菌门的比例升高,与肥胖及胰岛素抵抗密切相关[10]。革兰氏阴性菌增多,其释放的脂多糖可通过TLR4/MyD88通路激活固有免疫系统,诱导卵巢局部慢性低度炎症反应和细胞凋亡,加重胰岛素抵抗和高雄激素血症,进一步加重肥胖[11]。

## 2.2. 中医发病机制

在中医理论中,肥胖型PCOS属于“月经后期”、“闭经”、“不孕”等范畴[12],以脾肾亏虚为本、痰湿血瘀为标,核心是肾-脾-肝三脏失调与病理产物互结,扰乱“肾-天癸-冲任-胞宫”轴,形成“本虚-标实-代谢/生殖紊乱”的恶性循环[13]。

肾虚为根,脾虚为本。肾主藏精,主生殖,肾虚则无力温煦脾阳、蒸腾水湿,加重痰湿内停;肾精不足则天癸迟滞或失常,冲任失调,影响卵泡发育与排卵,导致月经不调和不孕。脾主运化,饮食不节、久坐少动损伤脾气,脾虚则运化失司,致水谷精微停滞成痰湿,痰湿泛滥肌肤则肥胖,壅塞胞宫则卵泡发育受阻、气血不畅。情志失调致肝气郁结,肝郁则气滞血瘀,气血运行不畅,进一步加重痰湿和血瘀的形成[13]。

痰湿和血瘀是标实。脾虚失运、肾虚水泛、肝郁气滞共同酿生痰湿,黏滞重浊,易流注冲任、壅塞胞宫,导致排卵障碍、肥胖加重,与胰岛素抵抗、内脏脂肪堆积、卵泡发育停滞正相关。痰湿阻滞气血、肝郁气滞、久病入络均可致血瘀,瘀血内阻会导致微循环障碍以及慢性炎症[13][14]。

## 3. 西医治疗的研究进展

### 3.1. 生活方式干预

生活方式干预应作为肥胖型PCOS患者的一线治疗方案,包括饮食调整、运动锻炼和行为干预。研究表明,生酮饮食有助于降低胰岛素抵抗和改善血脂异常[15]。此外,限制碳水化合物摄入和增加蛋白质摄入也被证明有助于改善PCOS患者的代谢状况[16]。运动锻炼对肥胖型PCOS患者至关重要,有氧运动和阻抗训练相结合的运动方案效果最佳[17]。研究表明,每周至少150分钟的中等强度有氧运动能够显著改善胰岛素敏感性、降低体重和改善月经周期[18]。阻抗训练有助于增加肌肉质量,提高基础代谢率,进一步促进体重减轻和代谢改善。行为干预包括心理支持、压力管理和睡眠改善等。PCOS患者常伴有焦虑和抑郁等心理问题,这些问题会进一步加重内分泌和代谢紊乱,心理干预和认知行为疗法可以帮助患者应对压力和改善心理健康状况,进而提高治疗依从性和效果[19][20]。

### 3.2. 药物治疗

#### 3.2.1. 胰岛素增敏剂

二甲双胍是治疗肥胖型PCOS的一线药物,通过激活AMPK通路、抑制线粒体复合物I,增加胰岛素敏感性,改善糖代谢,降低肝糖输出,减少脂肪堆积与炎症反应。在肥胖型PCOS中可降低空腹血糖,改善胰岛素水平及HOMA-IR,但单药减重有限,常需联合治疗[21]。

近年来,胰高血糖素样肽-1受体激动剂(GLP-1RA)在肥胖型PCOS治疗中的应用受到广泛关注,其作用机制包括抑制食欲、延缓胃排空、促进胰岛素分泌和改善胰岛素敏感性等[22]。司美格鲁肽和利拉鲁

肽等 GLP-1 RA 药物不仅能显著降低体重,还能改善胰岛素抵抗和高雄激素血症。Meta 分析中可见,司美格鲁肽联合二甲双胍治疗在降低体重、内脏脂肪及睾酮水平上优于二甲双胍单药[23],利拉鲁肽联合二甲双胍在改善 HOMA-IR、BMI 及睾酮水平方面亦优于二甲双胍单药[24]。

替尔泊肽,是作用于葡萄糖依赖性促胰岛素多肽(GIP)和胰高糖素样肽-1 (GLP-1)受体的双靶点降糖药,在 SURMOUNT-1 试验中,替尔泊肽在 72 周内实现了显著的体重减轻[25]。

Retatrutide 作为 GLP-1/GIP/胰高血糖素三受体激动剂,在 2 期临床试验中显示出卓越的减重效果,在 48 周治疗后,12 mg 实验组体重减轻优于安慰剂组[26]。

噻唑烷二酮类药物通过激活过氧化物酶体增殖物激活受体  $\gamma$ ,增加胰岛素敏感性,然而,这类药物可能增加心血管风险和体重,限制了其在肥胖型 PCOS 患者中的长期应用[27] [28]。

### 3.2.2. 调节内分泌药物

短效口服避孕药(COC)是调节月经周期和降低雄激素水平的一线药物,通过抑制促性腺激素分泌,降低 LH 和雄激素水平,改善多毛、痤疮等症状,并调节月经周期,但对于肥胖的减重效果有限[29]。屈螺酮炔雌醇联合奥利司他治疗后,BMI、腰围、HOMA-IR 下降幅度优于单药治疗[30]。

抗雄激素药物作用于雄激素受体(AR),拮抗脂肪细胞增殖及内脏脂肪堆积,减轻组织炎症,改善胰岛素抵抗,打破“肥胖-胰岛素抵抗-高雄激素”的恶性循环[31]。螺内酯竞争性结合 AR,阻断睾酮作用,可显著减轻多毛、痤疮等症状,优化脂肪分布,改善中心性肥胖。环丙孕酮抗雄激素作用强于螺内酯,对于减重没有直接作用,联合 GLP-1 受体激动剂在减重的同时强化高雄体征的控制[32] [33]。新型 AR 降解剂(如 ARV-110)在动物实验中显示低剂量可减轻双氢睾酮诱导的体重、体脂与瘦素升高,但临床转化尚需验证[34]。

### 3.2.3. 促排卵药物

克罗米芬是传统的一线促排卵药物,通过与雌激素受体结合,解除雌激素对下丘脑和垂体的负反馈,促进卵泡刺激素(FSH)和黄体生成素(LH)的分泌,从而促进卵泡发育和排卵。然而,克罗米芬可能导致子宫内膜变薄和宫颈粘液减少,影响妊娠率[35]。

来曲唑通过抑制芳香化酶活性,减少雌激素合成,从而解除雌激素对下丘脑和垂体的负反馈,促进卵泡发育和排卵。与克罗米芬相比,来曲唑具有更高的排卵率和妊娠率,且不良反应较少[36]。

### 3.2.4. 营养补充剂

肌醇是一种维生素 B 族类似物,参与胰岛素信号传导,能改善胰岛素敏感性和卵巢功能,肥胖型 PCOS 患者因 IR 更甚,相较于正常体重的患者获益更显著[37]。肌醇联合左旋肉碱、L-精氨酸和 L-半胱氨酸治疗肥胖型 PCOS 患者,可显著改善胰岛素敏感性和生殖功能[38]。肌醇联合叶酸可降低胰岛素、改善卵子质量与妊娠率[39] [40]。

肥胖型 PCOS 氧化应激(OS)重,活性氧升高、谷胱甘肽/谷胱甘肽过氧化物酶 4 (GSH/GPX4)下降,加剧 IR 及卵巢功能损伤[41]。一项 RCT (n=92)研究显示,复合虾青素治疗 3 个月可显著降低 BMI、HOMA-IR、睾酮,提升优质胚胎与临床妊娠率[42]。白藜芦醇可减轻体重,恢复卵巢形态,降低炎症,调节糖脂代谢[43]。动物实验显示,杨梅素可激活棕色脂肪组织,改善代谢与 IR,减少卵巢囊肿,恢复激素与动情周期[44]。抗氧化剂可显著降低 HOMA-IR、胰岛素、总睾酮、TC、LDL、VLDL,但对 HDL、体重、BMI 改善不显著,肥胖或 IR 表型 PCOS 患者获益更明显,联合方案优于单药[41]。

## 3.3. 手术治疗

对于药物治疗无效或肥胖严重的 PCOS 患者,手术治疗可能是一种选择。腹腔镜下卵巢打孔术(LOD)

是治疗 PCOS 的常用手术方法,通过电凝或激光在卵巢表面打孔,减少卵巢组织体积,降低雄激素水平,改善排卵功能[45]。减重代谢手术是近年来用于治疗严重肥胖型 PCOS 患者的有效方法。《减重代谢手术治疗肥胖症合并多囊卵巢综合征中国专家共识[46]》指出,减重代谢手术不仅能显著降低患者体重,还能改善 PCOS 的多种症状。减重代谢手术的常用术式包括胃袖状切除术、Roux-en-Y 胃旁路术和单吻合口胃旁路术等[47]。研究表明,减重代谢手术后,约 80%的 PCOS 患者能够恢复正常月经周期[48]。

## 4. 中医及中西医结合治疗的研究进展

### 4.1. 中药方剂

#### 4.1.1. 苍附导痰汤

苍附导痰汤由苍术、香附、陈皮、茯苓、半夏、南星、枳壳、生姜等组成,具有燥湿化痰、理气调经的功效,是治疗 PCOS 的经典方剂。现代研究在原方基础上进行加减,形成了多种改良方剂[49]。一项 RCT (n = 80)研究显示[50],苍附导痰汤加减治疗组总有效率显著高于对照组。苍附导痰汤加减联合二甲双胍治疗肥胖型 PCOS 的 Meta 分析中显示,联合用药组在降低 BMI、HOMA-IR、LH、FSH 方面均优于西药单药组[51]。

#### 4.1.2. 加味补中益气汤

加味补中益气汤原方由黄芪、党参、白术、炙甘草、当归、陈皮、升麻、柴胡组成,在此基础上加入茯苓、泽泻健脾利水,荷叶、山楂降脂化浊,丹参、益母草活血调经。通过下调 kisspeptin-GPR54,降低 AKT 磷酸化,促进 SHBG 合成;调节肠道菌群与代谢物,提升排卵与受孕率[52]。

#### 4.1.3. 加味启宫丸

加味启宫丸是在启宫丸基础上加减而成的方剂,具有燥湿化痰、理气活血的功效。一项 RCT (n = 120)研究显示[53],启宫丸联合二甲双胍治疗 12 周后,患者体重、BMI、WHR 及血清睾酮、雄烯二酮、游离雄激素指数、FINS、HOMA-IR 等指标均明显降低,雌二醇水平和子宫内膜厚度明显增加。

#### 4.1.4. 加味小陷胸汤

加味小陷胸汤是经典方剂小陷胸汤的改良方,具有清热化痰、宽胸散结的功效。一项 RCT (n = 98)研究显示[54],加味小陷胸汤联合炔雌醇环丙孕酮治疗 3 个月后,患者空腹血糖、FINS、HOMA-IR、TG、TC 均降低而 HDL-C 升高,且改善程度优于单纯西药组。

### 4.2. 中医外治法

#### 4.2.1. 针灸疗法

针灸是中医外治法的重要组成部分,根据经络理论和辨证论治原则,针灸通过调节经络气血运行,达到治疗疾病的目的。传统体针治疗主要选取与肾、脾、肝三经相关的穴位,腹部穴位如中脘、下脘、气海、关元、中极、归来等;下肢穴位如三阴交、足三里、丰隆、血海、太冲等;腰背部穴位如肾俞、脾俞、肝俞等[55]。一项将 58 例腹部肥胖型 PCOS 患者纳入的 RCT 研究显示,采用通调带脉针法治疗肥胖型 PCOS 患者 3 个月,患者血清抗苗勒管激素水平、体重、腰围、臀围、BMI、WHR 均显著下降[56]。电针是在传统体针基础上增加不同频率的电流刺激,以增强针刺效果。在比较 2Hz 连续波电针与 2 Hz/100 Hz 疏密波电针对 58 名腹部肥胖型 PCOS 的疗效的 RCT (n = 58)研究中[57],结果显示两种频率电针均可提高排卵频率,降低体重、BMI 及 WHR,但 2 Hz/100 Hz 疏密波电针在降低腰围、升高 SHBG 以及改善痤疮、疲劳感及痛经症状方面似乎优于 2 Hz 连续波电针。

#### 4.2.2. 穴位埋线疗法

穴位埋线是将可吸收的羊肠线或蛋白线埋入穴位，通过持续刺激穴位来治疗疾病的方法。一项 RCT (n=84) 研究显示[58]，穴位埋线联合二甲双胍治疗肥胖型 PCOS 3 个月后，患者 BMI、空腹胰岛素、HOMA-IR 均显著降低，且改善程度优于单纯二甲双胍治疗。在一项比较了电针组和电针 + 埋线组的疗效的 RCT (n=60) 研究中[59]，结果显示两组治疗后体重、BMI、WHR、FINS、HOMA-IR 均改善，但电针 + 埋线组在改善肥胖指标和月经症状方面优于单纯电针组。

#### 4.2.3. 耳穴压豆

耳穴压豆是通过耳廓特定穴位的压迫刺激来治疗疾病的方法，耳穴与脏腑经络密切相关，通过刺激相应耳穴可调节脏腑功能[60]。耳穴压豆可通过调节下丘脑 - 垂体功能，改善内分泌紊乱；同时通过调节脾胃功能，促进运化，达到减肥的目的[61]。

#### 4.2.4. 艾灸疗法

艾灸具有温阳散寒、活血化瘀、化痰祛湿的功效，特别适合于阳虚痰湿型的肥胖型 PCOS 患者。根据病情可采用温和灸、隔姜灸、隔盐灸等不同方法。动物实验显示，艾灸可重塑肠道菌群结构，增加拟杆菌门比例，减少厚壁菌门比例，改善胰岛素抵抗和卵巢形态。艾灸还可下调促炎因子水平，其机制可能涉及肠道 - 卵巢轴的调节[62]。

### 5. 小结与讨论

肥胖型多囊卵巢综合征作为一种对女性生育、代谢，甚至于精神心理多方面影响的复杂的内分泌疾病，其治疗面临诸多挑战。近年来，肥胖型 PCOS 的治疗取得了显著进展，从单一的药物治疗发展为包括生活方式干预、药物治疗、手术治疗和中西医结合治疗在内的综合治疗体系。研究者应加强对个体化治疗的临床验证，建立统一的诊疗标准，以期为 PCOS 患者提供更为科学、系统的治疗方案。只有通过不断地研究与实践，我们才能更好地理解这一复杂疾病，并为广大女性提供健康保障。

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