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· 专家论坛 ·

正颌外科专科护理模式的建立与应用

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【摘要】 牙颌面畸形是一种因颌骨发育异常所导致的颌骨体积、形态结构以及上下颌骨之间的位置关系失调, 表现为颜面形态异常、咬合功能错乱和口颌系统功能障碍。正颌手术是治疗牙颌面畸形的重要手段, 正颌外科专科护理方案的制定需结合患者不同病程的诊疗特点和需求。本文通过回顾既往文献并总结本院3 000余例正颌手术患者的护理实践经验, 并根据牛津证据分级标准对临床护理证据进行分级, 提出推荐的护理措施, 以此构建正颌外科专科护理模式, 为正颌患者提供全周期规范化护理。该模式主要分为3个阶段: 院前早介护理、院中集束护理、院后延伸护理, 并包含5个模块: 个案管理、心理干预、营养指导、并发症管理和功能恢复。在院前早介护理阶段, 具体护理措施包含数字化手术设计、心理护理、营养指导等方面; 在院中集束护理阶段, 具体护理措施包含并发症管理、口颌功能恢复、营养指导、心理干预等4大模块; 在院后延伸护理阶段, 需为患者提供个案管理、心理指导、营养指导等护理。

【关键词】 牙颌面畸形; 正颌手术; 专科护理; 并发症; 伤口护理; 术后护理; 心理护理; 正畸-正颌联合治疗; 全病程管理; 护理模式

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Establishment and applications of specific nursing models for patients undergoing orthognathic surgery

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【Abstract】 Dentofacial deformity is a disorder of the volume and morphological structure of the jaws and the positional relationship between the maxilla and mandible caused by abnormal development of the jaws, which is manifested by abnormal facial morphology, malocclusion and dysfunction of the stomatognathic system. Orthognathic surgery is an important means of treating dentofacial deformity, and the development of specialized nursing plans for orthognathic surgery needs to be developed based on the diagnostic and treatment characteristics and needs of different disease courses. This article proposed recommended nursing practices as a means of constructing a specialized nursing model for orthognathic surgery and providing standardized management for orthognathic patients throughout the entire cycle by reviewing previous literature and summarizing the nursing practice experience of our hospital in treating more than 3 000 pa-

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tients undergoing orthognathic surgery and classify clinical nursing evidence according to the Oxford Evidence Grading Standards. The model is divided into three main phases: prehospital early referral care, in-hospital intensive care, and posthospital extended care, and contains five modules: case management, psychological intervention, nutritional guidance, management of complications, and functional recovery. In the pre-hospital early referral care stage, the specific nursing measures include digital surgical design, psychological care, and nutritional guidance; in the in-hospital cluster care stage, the specific nursing measures include four modules, such as management of complications, orofacial functional recovery, nutritional instructions, and psychological interventions; and in the post-hospital extended care stage, the patients need to be provided with case management, psychological guidance, nutritional guidance, and other nursing care. Post-hospital extended care stage, need to provide patients with case management, psychological guidance, nutritional guidance and other care.

【Key words】 dentofacial deformities; orthognathic surgery; specialized nursing; complications; wound care; postoperative care; psychological care; orthodontic orthognathic combined treatment; full course management; nursing models

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牙颌面畸形(dentofacial deformities, DFD)是一种因颌骨生长发育异常引起的颌骨体积、形态结构以及上下颌骨之间及其与颅面其他骨骼之间的位置关系失调,表现为颜面形态异常、咬合关系错乱与口颌系统功能障碍^[1]。目前,正畸-正颌联合治疗是牙颌面畸形主要的治疗手段,包含术前正畸、正颌手术、术后正畸3个阶段,其中正颌手术为其关键步骤,可纠正颌面部骨骼之间的位置关系,矫治患者口颌功能^[2]。正颌手术较为复杂,手术持续时间较长,术区涉及范围较大,术后患者出现出血、感染、呼吸道梗阻的风险较高。

由于正颌手术的复杂性与精细性,护理的良好配合也必不可少^[3]。在正颌患者进行手术预约与方案设计、正式手术、术后随访等阶段需要的专科护理措施各不相同,且应根据患者的情况保持护理措施的针对性与连续性^[4, 5]。在患者到正颌外科初诊至正式手术前,护士需辅助患者进行手术预约、数字化手术设计、辅助检查、健康教育等工作^[5];在患者完成手术后,护士应严密观察并采取措施防止并发症^[4];在患者出院后,还应进一步随访患者恢复情况,评估患者骨质愈合状况、功能恢复、手术效果等^[2]。然而,现有护理模式较多仅针对正颌患者进行常规的围手术期护理,很难在整个病程中对患者进行密切追踪与干预。因此,

应根据患者不同病程的疾病专科特点与患者需求,从患者初诊至术后随访结束,建立正颌患者专科护理模式,为正颌患者提供连续不间断的全病程管理,精确满足每个阶段的诊疗需求。

因此,本文在对3 000余例牙颌面畸形患者提供的正颌手术临床护理实践的基础上,结合国内外高质量护理文献,并根据牛津证据分级标准对临床护理证据进行分级,以正颌外科专科护理的视角,依据患者不同病程的专科特点,探讨建立正颌外科患者的专科护理模式,以此为正颌患者提供连续不间断的全病程护理管理模式。

1 正颌手术治疗患者的护理特点与目标

1.1 护理周期长

正颌患者术前需完善资料收集、手术预约、数字化手术设计、辅助检查、身心准备等流程^[6];术后应促进患者康复,预防并发症;此外,还需促进患者术后口颌系统功能的恢复,并对手术效果进行进一步评价与随访,在术后3、6、12个月复诊时评估手术效果,时间跨度超过1年^[2]。涉及护理措施多种多样,护理工作应涵盖患者的整个治疗周期。

1.2 正颌手术术后护理难度大

1.2.1 出血 由于颌面部血管丰富,上下颌骨手术

均有可能导致患者出现出血、血肿^[7, 8]。双颌手术的出血量约为 (543.9 ± 236.2) mL, 双侧矢状劈开截骨术平均出血量约为 (148.7 ± 100.0) mL^[9]。正颌手术中出现出血并发症的发生率约为2.5%, 其中, 最常见的出血来源是腭降动脉与翼丛血管^[7]。因此, 正颌手术后应严密观察患者有无出血的征象。

1.2.2 窒息 除观察并预防患者术后出血以外, 正颌手术后还应密切观察患者呼吸道功能。正颌术后由于鼻部黏膜组织水肿、口腔底部水肿或血肿、鼻中隔偏曲等原因易导致患者呼吸道功能受损、可能压迫患者呼吸道引起窒息^[10, 11]。此外, 正颌手术后气道容积受到明显的影响^[12, 13]。因此, 应关注正颌患者术后呼吸功能。

1.2.3 感染 口腔属于细菌污染环境, 虽然颌面部血供丰富, 抗感染能力较强, 但由于患者术后颌骨位置移动、骨段间隙较大等原因, 仍然存在感染的风险^[14]。术后切口长期暴露于口腔内有菌环境中, 术后感染风险较高, 有效的伤口管理能够大幅降低患者术后感染发生率^[15-19]。

1.2.4 口颌面肌功能障碍 正颌手术旨在通过重新定位上颌骨和下颌骨来纠正由于潜在颌骨畸形引起的功能和美学问题^[20]。在这个手术过程中, 肌肉分离并重新连接, 导致可逆性肌肉萎缩、适应性形态恢复以及肌肉长度和方向的变化。因此, 正颌术后应早期促进患者口面肌功能恢复^[21]。

1.2.5 营养不良 正颌术后患者进食通常受限, 增加了患者营养不良风险。一项回顾性研究表明, 正颌术后第4周, 患者平均最大体质量下降了4.1 kg^[22]。因此, 正颌术后, 护士还应关注患者营养状况, 促进患者康复^[22]。

1.3 患者心理护理需求高

正颌患者普遍年轻化, 年龄分布在18~30岁, 对外形与功能期望值要求高, 对不良反应耐受差, 容易出现负面情绪^[23-25]。此外, 正颌手术是牙颌面畸形的主要治疗方法, 而患者的术前心理状态与手术结局和术后心理状态的改善程度密切相关, 当患者患有严重的心理疾病时, 会加剧患者术后并发症风险^[26, 27]。患者术前负面心理状态已被证明是正颌手术审美期望的影响因素之一, 当患者患有抑郁时, 会导致对正颌手术不切实际的审美期望的风险增加, 进而导致患者对正颌手术的满意度降低^[28]。因此, 应尤其强调对患者的心理护理。

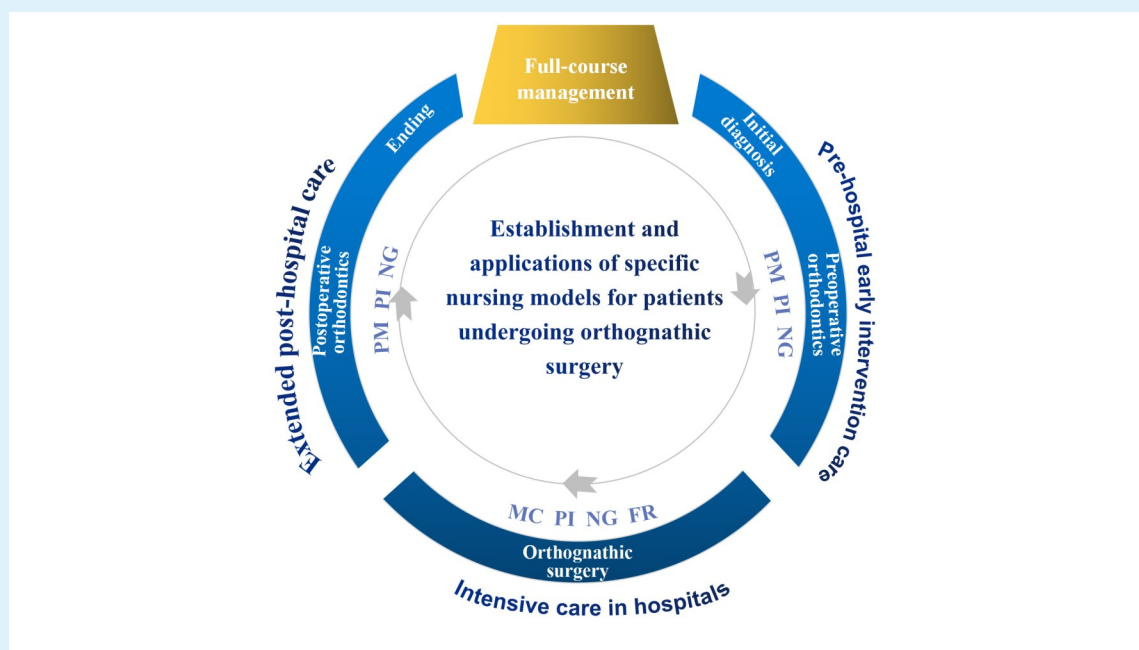
2 正颌手术患者专科护理模式的内容

正颌手术的诊疗以外科手术为中心, 可分为术前访视及数字化设计阶段、手术治疗阶段以及术后随访阶段。因此, 笔者根据不同病程患者的诊疗特点及需求, 同样将正颌患者专科护理模式分为3个主要阶段: 院前早介护理、院中集束护理、院后延伸护理。此外, 根据正颌患者在不同病程的病情特点与诊疗需求, 划分出5个主要的专科模块: 个案管理、心理干预、营养指导、并发症管理和功能恢复(图1), 以此建立正颌手术患者全病程的专科护理模式。

2.1 院前早介护理是正颌手术治疗顺利开展的基础

2.1.1 个案管理 目前, 国内关于正颌手术的术前管理已形成了以数字化为中心理念的诊疗流程, 包含手术方案的制订、数字化三维手术设计等完整流程^[5, 29]。在手术预约阶段, 护士主要辅助患者完成手术预约登记; 在手术前2个月, 进入数字化手术设计阶段, 即正颌手术数字化的核心阶段, 在这一阶段, 进一步完善患者资料, 并引导患者完成相关辅助检查; 完成手术三维设计方案后, 护士应再次协调医师与患者共同确认最终手术方案^[5]。已有研究指出, 在颌面外科手术前数字化设计阶段, 通过专科护士的专业指导与合理安排, 可促进数字化手术设计的规范化, 并确保临床数据的标准性^[30](C级证据)。

2.1.2 心理干预 ①初诊时评估: 正颌手术前心理状态可显著影响正颌手术的术后结局, 患者术前抑郁与焦虑是术后不良心理状态的风险因素之一, 且术前焦虑与术后急性疼痛呈正相关^[27, 31]。因此, 术前筛查患者不良心理状态有助于识别出心理疾病高风险患者, 有助于改善该部分患者手术结局, 并改善其手术效果^[32](A级证据)。术前评估患者对于手术的期望, 有助于提升患者手术满意度(C级证据)。此外, 还应根据患者自身的情况选择合适的评估工具。症状自评量表(symptom checklist-90, SCL-90)共包含90个项目, 可同时测量多个精神症状学内容, 可筛查出多种精神疾病, 也是当前使用最为广泛的精神障碍检查与心理疾病门诊筛查量表^[33]。可采用SCL-90等量表筛查出心理状态异常的患者, 按照全国常模结果, 总分超过160分, 或阳性项目数超过43项, 或任一因子分超过2分, 可考虑筛查阳性, 需进一步检查^[34](A级证据)。



MC: management of complications; PI: psychological intervention, NG: nutrition guidance; FR: functional recovery; PM: personal management

Figure 1 Establishment and applications of specific nursing models for patients undergoing orthognathic surgery

图 1 正颌外科专科护理模式的建立与应用

②加强术前沟通:患者对于手术的认知与期望对于手术效果有着显著的影响,当患者对手术期望过高,易导致患者对正颌手术的满意度下降,术后并发症风险增加,而当患者对于手术的期望过低,则易导致患者手术意愿下降,从而导致患者无法从正颌手术中受益^[25]。因此,在正颌手术前,医护应加强与患者的沟通,明确患者对于手术的期望,并纠正不切实际的期望和有偏见的认知,以减少患者术后并发症的风险(C级证据)。

2.1.3 营养指导 术前良好的心肺功能和身体状态能增加机体对手术的耐受性,促进快速康复^[35, 36]。研究表明,相较于术前未进行营养干预的患者,术前寻求营养师访视并进行营养管理的平均体质量减轻较少,并发症风险也更低^[37]。此外,良好的营养筛查测试可以对营养不良患者进行分类,以便营养师在手术前进一步评估和管理,以降低术后并发症的风险^[36]。在多种筛查工具中,营养不良通用筛查工具(malnutrition universal screening tool, MUST)准确性最高^[36](A级证据)。

2.2 院中集束护理是手术治疗成功的关键

院中集束护理始于患者入院当日,止于出院当日。此阶段为正畸-正颌联合治疗的关键阶段,患者在此阶段将接受正颌外科手术治疗。据文献

报道,正颌手术中和术后并发症的发生率为6.1%~9.0%^[38]。笔者总结了3 000余例牙颌面畸形患者正颌手术常见的并发症及发生率为0.9%~2.3%(表1)。该阶段的护理重点应为预防并处理术后并发症,并减少正颌手术对患者日常生活的影响。因此,本文将正颌术后护理归纳为并发症管理、颌颌功能恢复、营养指导和心理干预等4大模块,采用不同护理模块策略进行精细化护理管理与服务。

2.2.1 并发症管理

2.2.1.1 术后出血预防 ①观察要点:正颌手术术后24 h为出血的高峰期,行Lefort I型截骨术后的患者应尤其警惕出血的发生^[39]。行下颌骨截骨术者如伴发出血则可导致上呼吸道通气障碍^[8]。术后出现面部肿胀进行性增大、鲜红色引流液24 h超过250 mL、口底与舌体抬高、生命体征不稳定时,提示患者可能出现活动性出血^[3](B级证据),应及时通知医师采取措施。

②应用药物预防出血:正颌外科手术(尤其是双颌手术)采取适当措施控制失血十分重要^[40]。为预防正颌手术术中以及术后继发出血,可使用药物减少正颌手术术中或术后出血。Shetty等^[41]进行的临床随机对照试验指出,正颌手术前30 min,

表1 正颌手术常见并发症的发生率

Table 1 Incidence of common complications of orthognathic surgery

Complications of orthognathic surgery	Incidence of bimaxillary surgery	Incidence of single mandibular surgery	Total incidence
Hemorrhage	3.1%	1.2%	2.3%
Airway obstruction	1.5%	1.2%	1.3%
Dysfunction of the oral and maxillofacial muscles	1.1%	0.7%	0.9%
Infection	2.7%	1.8%	2.4%

The data is sourced from over 3000 patients who underwent orthognathic surgery for dentofacial deformity at West China Hospital of Stomatology, Sichuan University from May 2020 to April 2025, including patients with maxillary retrognathia, mandibular protrusion, mandibular retrognathia, and other dental and maxillofacial deformities

为患者注射1单位蛇毒巴曲酶可将患者失血量减少52.43 mL(减少11%)。应用蛇毒巴曲酶可显著减少患者失血量,且并不影响正常凝血时间,具有良好的安全性^[41, 42](A级证据)。

③提供冷疗,收缩血管:正颌术后采用冰袋冰敷可有效减少组织灌注,将灌注血管密度指数由 $3.54\% \pm 0.42\%$ 降低至 $0.54\% \pm 0.73\%$ ^[43]。正颌术后对患者颊唇部及下颌升支术区间断冷敷,可有效减轻患者颌面部肿胀^[44]。因此,为降低正颌手术后组织充血肿胀,可在正颌术后24~48 h内为患者提供间断冷疗,可采用冰袋为患者术区进行冰敷,实际操作时应使用纱布覆盖耳廓防止冻伤(A级证据)。

2.2.1.2 气道梗阻预防 ①观察要点:正颌术后,由于软组织与颌骨位置改变,导致咽腔体积变化,进而影响患者呼吸功能^[45]。此外,由于手术可导致患者咽侧壁肿胀,如伴发血肿,还可导致患者呼吸不畅^[8]。因此,术后应密切观测患者的生命体征,密切监测呼吸的频率、节律、血氧饱和度,关注患者面色变化及主诉,防止呼吸道梗阻的发生^[3];同时需注意观察有无出血导致的呼吸道梗阻的发生(A级证据)。

②及时清理呼吸道:正颌术后,护士应辅助患者进行呼吸道管理。护士应鼓励患者深呼吸和咳嗽,及时排出气道分泌物;并及时帮助患者吸痰,避免痰液堵塞呼吸道,必要时,使用雾化吸入等方法湿化气道,促进痰液排出^[3](B级证据)。

③呼吸功能训练:为患者提供缩唇呼吸训练可有效提高患者用力肺活量与用力呼气量。以缩唇呼吸为主的呼吸功能锻炼可将患者呼吸困难评分由9.35分降低至4.44分^[46]。除去缩唇呼吸以外,腹式呼吸也被证明能够改善患者呼吸功能。腹式呼吸可将患者潮气量由21.51 mL提升至

65.68 mL,并显著降低患者呼气末残气量^[47]。因此,术前应教会患者有效呼吸方法,并进行呼吸功能锻炼,例如缩唇呼吸、腹式呼吸、缩唇腹式呼吸等,可有效提升患者动脉血氧分压(PaO_2),降低动脉血二氧化碳分压(PaCO_2),并可显著提升患者呼吸功能(A级证据)。

2.2.1.3 感染预防 ①观察要点:观察有无伤口感染可能的临床表现,感染可识别为手术部位脓性或阳性浆液血性流出、疼痛或压痛、伤口边缘和周围组织的局部肿胀和发红,以及48 h后体温升高至 38.5°C 以上^[48](A级证据)。

②持续口腔冲洗:口腔冲洗可有效降低牙周治疗患者的感染风险^[49]。采用聚维酮碘溶液涂抹口腔手术患者口腔黏膜后口腔细菌菌落形成单位显著降低^[50]。聚维酮碘溶液与生理盐水体积比例1:1稀释后进行全口腔冲洗上药,可有效降低患者牙菌斑指数,提升患者口腔清洁度^[50](B级证据)。

③预防性应用抗生素:正颌术前预防性应用抗生素可有效降低患者手术后伤口的感染风险^[48]。初始应用应在手术前30 min静脉给药,在无药物过敏的情况下,药物可选择青霉素、头孢类抗生素、克林霉素等药物^[48](A级证据)。

2.2.2 颌颌功能恢复 ①观察要点:正颌手术期间应多次使用咬合分析系统、三维面相扫描仪等设备定期监测患者口面肌功能情况,时间节点包含术前7 d、术后2 d、术后14 d等^[51];并及时对锻炼方法及频次做出调整,从而加速颌颌功能的恢复^[21](B级证据)。

②持续功能锻炼:正颌手术易导致患者面部肌肉功能障碍,因此,患者可从术后口面肌康复锻炼中受益。口面部肌康复锻炼在手术后第二天立即开始,旨在确保运动的频率和强度。患者需要每天进行3次以上练习,以促进面部表情肌肉功能

的有效恢复:轻轻闭合上下唇,保持该位置5 s、微微张开嘴唇,连续念“E”5次、撅起嘴唇并连续念“Wu”5次、将嘴唇压在一起,连续念“Po”5次、给脸颊充气,同时保持上下嘴唇闭合,确保尽可能少的空气逸出,并保持5 s、交替给每一侧的脸颊充气,执行这个动作5次、轻轻地将上下牙齿咬紧在一起,重复5次^[21]。上述口面肌康复功能锻炼可有效促进面部表情肌肉功能的恢复(B级证据)。

2.2.3 营养指导 ①观察要点:正颌术后应密切观察患者体质量减轻程度、BMI指数、脂肪百分比、血红蛋白、人血清白蛋白等营养指标,监测有无营养不良的临床表现^[52](B级证据)。

②持续营养指导:正颌术后应鼓励患者多进营养丰富,清淡、流质饮食,并选用温凉流质饮食,以免刺激患者伤口。进食方式可采用间歇性管饲法,即在患者需要进食时将营养经管从口置入,进食完毕后无需长期置管,不影响患者进行其他康复性训练^[53](B级证据)。实际操作时,可采用代金氏管给予均衡的流质饮食,即将流质灌入20~30 mL注射器接上约20 cm的塑料接管,将管沿口角放置于患者咽腔,缓慢注入流质饮食,200 mL/次,5~6次/d^[54](B级证据)。

2.2.4 心理干预 ①观察要点:通过专业心理学测量工具评估患者的心理状况,例如应用9项患者健康问卷(patients health questionnaire-9, PHQ-9)、广泛性焦虑筛查量表(generalized anxiety disorder assessment, GAD-7)和SCL-90等量表评估患者心理状况。除评估患者心理状况以外,还应评估患者对于手术的满意度,观察有无因手术效果不满意而引起的负面心理状况。

②心理干预:针对筛查出心理问题较凸显的患者,在此护理阶段给予更充分的沟通、疏导与干预,给予更多心理支持,例如应用认知行为疗法可有效减轻患者、抑郁或焦虑等情绪障碍^[55, 56];对于明显焦虑的患者,还可应用音乐疗法等放松疗法缓解患者的焦虑^[57-59](A级证据)。

2.3 院后延伸护理是患者全面康复的保障

院后延伸护理始于出院当日,止于整个正颌-正颌联合治疗全部结束。此阶段为正颌手术治疗的精细调整与巩固阶段。根据院后延伸护理阶段的诊疗特点及患者需求,纳入个案管理、心理干预及营养指导模块,为患者出院后提供持续的康复指导与支持,以促进治疗的巩固与康复。

①个案管理:在这一阶段护士将进一步对患

者的康复情况与手术效果进行持续跟踪随访,随访内容包括骨质愈合、颞下颌关节情况及手术效果;随访时间节点为术后1、3、6、12个月,协助患者完善相关辅助检查,并检查患者咬合情况^[2]。此外,还应为患者提供自护指导和随访管理,保证患者康复阶段自我护理的规范性和诊疗的连续性。

②心理干预:将住院期间心理问题较凸显的患者纳入心理随访管理,定期电话随访,了解患者心理状态,给予专业疏导,促进患者的身心全面康复。

③营养指导:将营养高风险患者纳入延伸护理阶段营养管理中,通过电话、专病随访平台、复诊等方式,了解患者在康复期的营养状态,给予专业指导与建议,以保证伤口与骨的正常愈合。

正颌外科已有200余年历史,已取得显著的进步和蓬勃的发展,在数字化外科和3D打印技术迅猛发展的推动下,正颌外科已经从过去的“经验外科”时代进入“精准外科”新时代^[60]。在这个诊疗过程中,护理人员扮演着关键的角色^[5]。《第四次全国口腔健康流行病学调查报告》显示,中国错颌畸形的患病率达74%,对应潜在错颌畸形患者人数约10.4亿人,预示着正颌外科专科护理的巨大需求^[61]。

然而,现有针对正颌外科专科护士的培养仍然存在问题,针对专科临床操作技能和专科理论知识的培训尚缺乏^[62]。在现代医学的发展进程中,护理不只是单纯的照护,更是对生命的尊重,人文关怀已经成为当代护理学科的根本内核^[63, 64]。因此,基于正颌外科的专科特点与患者需求,建立并推广正颌外科专科护理模式,为患者提供更加科学、系统、专业、个性化的护理服务,推动了正颌外科专科护理的人才培养与专业发展,已成必要趋势。

综上所述,正颌外科专科护理模式将优质的护理服务与人文关怀覆盖到患者就诊的全病程中。在每一个就医阶段中精确评估患者需求,将每个阶段的患者管理细化为不同的模块,并由专人管理实施,促进了正颌患者护理管理的科学化、精细化与规范化。

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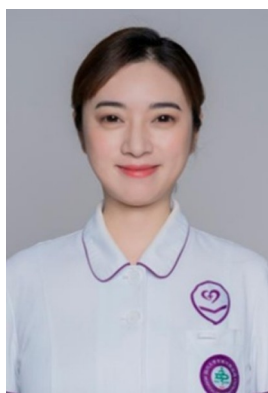
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· 短讯 ·

《口腔疾病防治》被美国化学文摘社(CAS)数据库收录

2025年6月,《口腔疾病防治》杂志通过美国化学文摘社(Chemical Abstracts Service, CAS)数据库的严格评审,正式被其收录。

CAS是美国化学会(American Chemical Society, ACS)的分支机构,是世界上最权威的化学信息机构,是全球唯一一家致力于发现、收集、整理所有已披露的化学物质信息的机构。

此次收录是本刊继被美国Ulrichsweb/EBSCO数据库、瑞典DOAJ数据库、荷兰Scopus/Embase数据库、日本JST数据库、瑞士HINARI数据库、WHO西太平洋地区医学索引(WPRIM)、波兰哥白尼索引(IC)等国际著名数据库收录之后的又一重要国际著名数据库收录。这标志着本刊在学术质量、开放获取和伦理规范等方面获得国际学术界的广泛认可。

《口腔疾病防治》将以建设世界一流科技期刊为目标,竭诚为广大读者、作者做好服务,促进中外学术交流和人类的口腔健康。

《口腔疾病防治》编辑部