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Summary of the Best Evidence for Discharge Preparation Services in Patients with Myasthenia Gravis

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Abstract: Based on the "6S" pyramid evidence model, this study systematically searched and integrated high-quality evidence such as relevant guidelines, expert consensus, systematic reviews, and clinical studies on discharge preparation services for patients with myasthenia gravis (MG) worldwide up to March 27, 2024. A total of 12 literatures were finally included, and 14 best practice recommendations were summarized, covering six key links: assessment within 24 hours of admission, in-hospital services, pre-discharge preparation, discharge-day services, post-discharge follow-up, and effect evaluation. Evidence indicates that a comprehensive assessment should be completed within 24 hours of the patient's admission, and a multidisciplinary collaborative discharge plan should be initiated. Personalized health education and rehabilitation training should be carried out during hospitalization. Before discharge, patients' self-management capabilities should be confirmed, and structured discharge guidance should be provided. Post-discharge continuous care should be strengthened through regular follow-up. This can effectively improve patients' discharge readiness, reduce readmission rates, and provide an evidence-based basis for medical staff to systematically implement discharge preparation services for MG patients and ensure the safety of the transition period.

Keywords: Myasthenia gravis; Discharge preparation services; Evidence-based nursing; Evidence summary

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1. Introduction

Myasthenia gravis (MG) is an autoimmune disease related to neuromuscular junction transmission disorders. Its global incidence is 0.6–2.8 per 100,000 people, while in China, it reaches 2.19–11.07 per 100,000 people [1–3]. Discharge preparation services originated from the continuous care system in the United States, aiming to ensure that patients receive appropriate follow-up care after discharge through systematic planning during hospitalization, thereby improving their health status and quality of life [4–5]. Currently, discharge decisions for MG patients are mainly based on clinical symptoms and examination results, with subsequent precautions

simply informed in the form of discharge summaries, lacking systematicness and continuity. To optimize this process, this study systematically searched, evaluated, and integrated relevant evidence on discharge preparation services for MG patients, aiming to provide an evidence-based basis for clinical practice.

2. Materials and methods

2.1. Establishment of the research question

This study adopted the PIPOST model proposed by the Evidence-Based Nursing Center of Fudan University to construct the evidence-based question, clearly defining the following elements: Population (P) = patients with myasthenia gravis; Intervention (I) = discharge preparation services; Professionals (P) = medical staff; Outcomes (O) = improvement of discharge readiness, self-management ability, and quality of life, etc.; Setting (S) = hospitals; Type of evidence (T) = guidelines, expert consensuses, evidence summaries, best practices, clinical decisions, and systematic reviews.

2.2. Literature search

Based on the "6S" pyramid evidence model, this study systematically searched relevant literature from multiple domestic and foreign guideline websites, databases, and professional society websites up to March 27, 2024, including UpToDate, JBI, PubMed, Embase, CNKI, and other Chinese and English resources. Search terms included various names of myasthenia gravis and keywords related to discharge planning and continuous care. Chinese and English search terms were combined according to disease names, intervention measures, and literature types, respectively. The specific search strategy using PubMed as an example is shown in **Figure 1**.

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#1( ( (Myasthenia Gravis, Generalized[Title/Abstract] OR Generalized Myasthenia Gravis[Title
/Abstract] OR Myasthenia Gravis, Ocular[Title/Abstract] OR Ocular Myasthenia Gravis[Title/Abs
tract] OR MuSK Myasthenia Gravis[Title/Abstract] OR Myasthenia Gravis, MuSK[Title/Abstract] O
R Anti-MuSK Myasthenia Gravis[Title/Abstract] OR Myasthenia Gravis, Anti-MuSK[Title/Abstract]
 OR MuSK MG[Title/Abstract]) )
AND
#2( (discharge planning[Title/Abstract] OR discharge plan[Title/Abstract] OR patient transfe
r[Title/Abstract] OR post discharge[Title/Abstract] OR continuing care[Title/Abstract] OR tra
nsitional nursing[Title/Abstract] OR patient discharge[Title/Abstract] OR transitional care[T
itle/Abstract]) )
AND
#3( (systematic review[Publication Type] OR meta-analysis[Publication Type] OR guideline[Pub
lication Type] OR best practice[Title/Abstract] OR evidence summary[Title/Abstract] OR recomm
ended practice[Title/Abstract]) )
)
#4 #1and #2and #3
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Figure 1. Search strategy example

2.3. Inclusion and exclusion criteria

2.3.1. Inclusion criteria

Research subjects were patients with myasthenia gravis; research content involved discharge preparation services; literature types included clinical decisions, best practices, guidelines, evidence summaries, expert consensuses, and systematic reviews; languages were limited to Chinese and English.

2.3.2. Exclusion criteria

Full text unavailable, duplicate publications, and literature with low methodological quality.

2.4. Literature quality evaluation

Corresponding tools were used to evaluate the quality of included literature: AGREE II (2017 version) [8] for guidelines; the 2016 version of corresponding evaluation tools from the JBI Evidence-Based Healthcare Center of Australia for expert consensuses and systematic reviews [6, 9]; clinical decisions were directly included as high-quality evidence. Three systematically trained researchers independently completed the evaluation and cross-checked. Disagreements were resolved through team discussions. Evidence inclusion followed the principles of prioritizing high quality, authority, and timeliness.

2.5. Evidence grading

This study adopted the JBI Evidence Pre-grading and Recommendation Level System (2014 version) to grade the included evidence [7]. This system classifies evidence levels into 1–5 (Level 1 is the highest, Level 5 is the lowest), and recommendation intensity is divided into Grade A (strong recommendation) and Grade B (weak recommendation) based on the feasibility, applicability, clinical significance, and effectiveness of the evidence [10].

3. Results

3.1. Literature search results and basic characteristics of included literatures

A total of 268 literatures were retrieved. After removing duplicates, 207 literatures remained. Through title and abstract reading, 20 literatures were initially screened. After full-text reading and quality evaluation, 12 literatures were finally included, including 1 clinical decision, 3 guidelines, 3 expert consensuses, 2 evidence summaries, 1 systematic review, and 2 randomized controlled trials [11–22]. The general characteristics of the included literature are shown in **Table 1**.

Table 1. General characteristics of the included literatures (*n*=12)

Included Literature	Publication Year	Literature Source	Literature Type	Research Theme
China Geriatric Nursing Alliance [11]	2020	Yimaotong	Expert Consensus	Expert Consensus on Discharge Preparation Services for Elderly Patients
Xu Yafang et al. [12]	2024	Yimaotong	Expert Consensus	Expert Consensus on Whole-Course Management of Adult Generalized Myasthenia Gravis Patients
Sheng Zhaoyuan et al. [13]	2024	CNKI	Expert Consensus	Expert Consensus on Traditional Chinese Medicine Rehabilitation Self-Management for Patients with Myasthenia Gravis

Scott [14]	2010	PubMed	Systematic Review	Preventing Readmission: Improving Referral Care in Discharge Processes
RONO [15]	2023	RONO	Guideline	Best Practice Guideline for Transitions in Care and Services (2nd Edition)
Narayanaswami P, Sanders DB et al. [16]	2020	PubMed	Guideline	International Consensus Guidance for the Management of Myasthenia Gravis
Li Zhuyi et al. [17]	2020	Yimaotong	Guideline	Chinese Guidelines for the Diagnosis and Treatment of Myasthenia Gravis
Wang Hui et al. [18]	2020	CNKI	Evidence Summary	Evidence Summary of Key Tasks in Hospital Discharge Planning for Inpatients
Whitehorn et al. [19]	2019	JBI	Evidence Summary	Discharge Planning: Key Principles
Alper et al. [20]	2023	UpToDate	Clinical Decision	Hospital Discharge and Readmission
Yang Ruolan et al. [21]	2021	CNKI	Randomized Controlled Trial	The Impact of Nursing Intervention Based on the Knowledge-Attitude-Behavior Theory on Self-Efficacy and Self-Burden of MG Patients
Zhao Feng et al. [22]	2020	Chinese Medical Association	Randomized Controlled Trial	The Impact of Self-Efficacy Intervention on Self-Care Ability and Quality of Life of MG Patients

3.2. Results of literature quality evaluation

The results of the literature quality evaluation showed that among the 12 included literatures, 3 guidelines were evaluated by AGREE II [15–17]. Only the RONO guideline was recommended as Grade A and adopted, while the other 2 guidelines were not recommended due to their recommendation levels of Grade B and Grade C. 3 expert consensuses, 1 systematic review, 1 clinical decision from UpToDate, and 2 randomized controlled trials were all evaluated as high-quality evidence and included in the final analysis, as shown in **Table 2** [11–17, 21-22].

Table 2. Methodological Quality Evaluation Results of Included Guidelines (*n*=3)

Included Guidelines	Standardized Score (%)						Number of Domains with ≥60% Scores	Number of Domains with ≥30% Scores	Recommendation Level
	Scope and Purpose	Stakeholder Involvement	Rigor of Development	Clarity of Presentation	Applicability	Editorial Independence			
RONO [15]	100.00	92.59	90.28	100.00	83.33	61.61	6	6	Grade A
Narayana [16]	85.7	57.1	47.6	85.7	42.9	85.7	3	6	Grade B
Li Zhuyi et al. [17]	64.3	35.7	50.0	78.6	21.4	42.9	2	5	Grade C

3.3. Summary of the best evidence

The best evidence for discharge preparation services in MG patients was extracted from the 12 included literatures, and finally, an evidence summary consisting of 14 items under 6 themes was formed: assessment within 24 hours of admission, in-hospital services, pre-discharge preparation, discharge-day services, post-discharge follow-up, and effect evaluation (**Table 3**).

Table 3. Summary of the best evidence for discharge preparation services in patients with myasthenia gravis

Evidence Category	Evidence Content	Evidence Level
Assessment within 24 Hours of Admission	1. Complete the initial needs assessment within 24 hours of the patient's admission, identify high-risk groups, assess the patient's condition, promote effective communication among patients, family members, and medical staff, and immediately initiate personalized discharge preparation services. [11, 18–19] 2. The assessment content should comprehensively cover multiple dimensions such as the patient's age, MG classification, activities of daily living, swallowing and respiratory function, motor ability, psychological status, medication status (e.g., immunosuppressants, biological agents, glucocorticoids), as well as mastery of medication knowledge, medication adherence, caregiver ability, family economic support, readmission risk, and accessibility of post-discharge services. [11–12, 18] 3. Establish a multidisciplinary team to jointly formulate and initially implement the discharge plan. [18]	Grade A
In-Hospital Services	4. Conduct health education through various methods such as bedside one-on-one education and disease health manuals to help patients and caregivers master self-care skills. [11, 18, 21] 5. Health education content should cover MG disease knowledge, medication guidance, predisposing factors, and crisis identification to improve patients' treatment adherence. [11–12, 18] 6. Develop personalized education plans based on different manifestations of skeletal muscle involvement (e.g., diplopia, dysphagia, walking difficulties, dyspnea) and the patient's cultural background, focusing on preventing complications such as falls, aspiration, and deep vein thrombosis. [11–12,18] 7. Guide patients and caregivers to familiarize themselves with the precautions for commonly used medications, monitor adverse drug reactions, and ensure standardized medication in accordance with medical advice. [11–12, 18] 8. Encourage patients with stable conditions to perform respiratory muscle training, swallowing function exercises, and aerobic exercise to enhance muscle strength and improve functional status. [12–13, 22]	Grade A
Pre-Discharge Preparation	9. Assess the patient's discharge readiness to ensure that the patient, with the assistance of caregivers, has the ability to manage common symptoms, master rehabilitation knowledge (diet, exercise, sleep), identify crisis triggers, and conduct emergency handling. [12, 18] 10. Check the patient's self-prepared medications before discharge and remove expired or discontinued drugs. [12, 18]	Grade A
Discharge-Day Services	11. Confirm that the patient meets the discharge criteria 1 hour before discharge. +12. Provide the patient with a discharge summary, which should include key information such as basic condition, medication guidance, precautions, follow-up arrangements, and self-management plans. [11–12, 18]	Grade A
Post-Discharge Follow-Up	13. Complete the first telephone follow-up within 3–7 days after the patient's discharge, and the second follow-up 2 weeks or 1 month after discharge, with each follow-up lasting 15–20 minutes. Follow-up content should include physical recovery status, existing problems, medication management, progress of rehabilitation training, and follow-up visit arrangements. [14–15, 20]	Grade A
Effect Evaluation	14. Effect evaluation indicators should include patient satisfaction, self-care ability, quality of life, average length of hospital stay, and incidence of adverse events outside the hospital. [11]	Grade B

4. Discussion

4.1. Early screening and assessment provide a basis for subsequent care needs of MG patients

Evidence 1 points out that discharge preparation services are time-sensitive, and patient screening and assessment should be completed within 24 hours of admission to identify high-need groups and provide a basis for formulating personalized discharge plans. Evidence 2 further clarifies the assessment content and timing, covering multiple dimensions such as the patient's basic status, disease characteristics, self-

management ability, and social support [11,18–19].

4.2. Multidisciplinary cooperation in the formulation and implementation of discharge plans

Evidence 3 emphasizes the importance of multidisciplinary collaboration in the formulation and implementation of discharge plans, but its feasibility in current clinical practice still faces challenges. Future research can focus on constructing an efficient multidisciplinary collaboration mechanism and corresponding talent training system to improve the overall quality of discharge preparation services [18]. Evidences 4–10 point out that during discharge preparation services, close observation should be paid to the positive signs of MG patients caused by systemic skeletal muscle involvement, such as fluctuating muscle weakness, fatigue, and corresponding symptoms caused by involvement of facial muscles, masticatory muscles, pharyngeal muscles, cervical muscles, and respiratory muscles [3, 12–13, 22]. Based on these clinical manifestations, the multidisciplinary team should collaborate to carry out precise health guidance and skill training to help patients master the key points of home self-care, thereby improving their discharge readiness, promoting a smooth transition of patients to home or community, and enhancing their self-management ability.

4.3. Implementation of precise discharge plans

Evidences 11 and 13 indicate that MG patients should meet relevant criteria when discharged from the hospital, and the hospital should provide systematic guidance on safe medication and follow-up arrangements in accordance with the discharge plan to ensure the continuity and safety of treatment for patients in different care settings. Currently, discharge summaries are mostly in text form, and the education methods are single. More diverse guidance forms should be promoted in the future. Evidence 14 suggests that follow-up conducted by medical staff and pharmacists familiar with the patient's condition through telephone, home visits, remote monitoring, etc., can effectively reduce the incidence of adverse events outside the hospital and unplanned readmissions and improve the patient's quality of life [14].

5. Conclusion

This study provides a systematic, evidence-based basis for discharge preparation services in patients with myasthenia gravis. Scientific and effective discharge preparation services can ensure the continuity of patient treatment and improve their quality of life. It is recommended that clinical nurses attach importance to the assessment of patients' discharge readiness and scientifically apply relevant evidence to guide practice in combination with individual differences.

Disclosure statement

The authors declare no conflict of interest.

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