

図9. 助産

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Structural Visualization of Expert Nursing: Cancer Pain Management

Chitose Watanabe^a, Makiko Uchiyama^a, Mikako Takahashi^a, Ekiko Sato^a,
 Satoko Tsuru^b, Hideo Dannoue^b

^a St. Luke's International Hospital

^b The University of Tokyo

Opening Summary

Nurses' knowledge and making decision in Cancer Pain Management contribute much to improvement of cancer patients' QOL. Based on practice of expert nurse involved in Cancer Pain Management, we have developed the algorithm, which clarified that nurses implement much of observations or complicated decision makings in Cancer Pain Management. Hereafter it is significant challenge to examine its consistency and validity to develop its system.

Key Word: Cancer Pain Management, Algorithm

Introduction

Pain is very severe problem for cancer patients and nurse takes very important role in Cancer Pain Management. For improving QOL of patients, appropriate decision of interventions adaptive to patient condition is required. To assure nursing quality, system supporting for such decision making is supposed indispensable. Here as early phase of developing this system, we developed algorithm of Cancer Pain Management based on practice of expert nurse in Cancer Pain Management.

Method

- (1) The literature review and web searches.
- (2) Interviews with Pain Control Nurse, pharmacist and doctors.
- (3) Clarify the factor of cares in Cancer Pain Management.
- (4) Develop the algorithm of Cancer Pain Management.
- (5) Examine the consistency of the algorithm with Pain Control Nurse.

Results

Algorithm was developed based on the World Health Organization's (WHO) analgesic ladder. This algorithm showed typical 15 sequences of choices according to combination of medicine and administration route. Algorithm consists of following nodes: 159 of choice, 202 of thinking, and 101 of action. Reference table and assessment item table were developed to support more appropriate decision making. Further more expert nurses make complicated decision which medicine to administer with doctors and pharmacists in Pain Management. Team medicine is indispensable so that algorithm should clearly specify the actor: who to make choice or who to take actions.

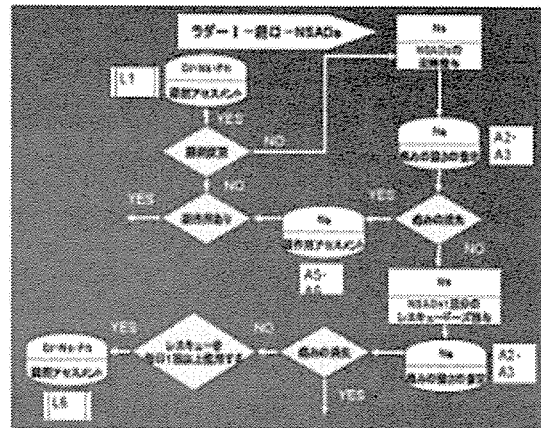


Figure1 Part of Algorithm of Cancer Pain Management

Conclusion

This algorithm clarified nurse implements several observations and multiple complex choices to take one action in Cancer Pain Management. It is next challenge in future to validate the algorithm by actually applying to cancer patients.

This study was supported by grant from Japan Ministry of Health, Labor and Welfare (No.15150501; Supervisor is PhD Satoko Tsuru).

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Address for correspondence

Chitose Watanabe: Section of Nurse Administration, St. Luke's International Hospital

9-1 Akashi-cho Chuo-ku Tokyo 104-8360 Japan

E-mail: chitwa@luke.or.jp

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Chitose Watanabe, Makiko Uchiyama, Mikako Takahashi, Ekiko Sato, Satoko Tsuru,
Hideo Dannoue

Opening summary

がん患者の QOL の向上を目指すためには、看護師のがん性疼痛マネジメントに関する知識や判断は重要である。がん性疼痛に関わるエキスパートナースの実践をもとに、がん性疼痛マネジメントにおけるアルゴリズムを作成し、看護師が疼痛マネジメントに関して多くの観察や複雑な判断を実践していることが明らかとなった。このアルゴリズムの一貫性および妥当性を検証し、今後システム化を検討する必要がある。

Keywords

Cancer Pain Management, Algorithm

Introduction

がん患者にとって痛みは深刻な問題であり、看護職者はペインマネジメントにおいて重要な役割を担っている。がん患者の QOL の向上をめざすためには、患者の状態に応じたケアについて適切な判断を必要とする。看護の質を保証するためには、将来、このような複雑な判断をサポートするシステムが不可欠である。そこで、システム開発の第一段階として、患者の痛みのマネジメントにおけるエキスパートナースの実践を参考にしてがん性疼痛マネジメントのアルゴリズムを作成した。

Methods

1. The literature review and Web searches.
2. ペインコントロールナース (?) および薬剤師、医師にインタビューを行う
3. がん性疼痛マネジメントのケア要素を明確化する
4. がん性疼痛マネジメントのケア提供ア

ルゴリズムを作成する

5. ペインコントロールナース (?) とともにアルゴリズムの一貫性を検討する

Results

がん性疼痛マネジメントのアルゴリズムは WHO の疼痛マネジメントラダー (the World Health Organization's (WHO) analgesic ladder) を基盤に作成した。このアルゴリズムには、薬剤と投与の経路を組み合わせて応じ、ある類似した一塊の判断の流れ 15 通りを確認することができた。アルゴリズム全体では判断の分岐 (choice) は 159 あり、判断 (Thinking) しなくてはならない対象は 202, 行為 (Action) は 101 見出すことができた。また、より適切な判断を導くために、参照テーブルやアセスメント項目テーブルを示しておく必要があった。さらに、エキスパートナースは、痛みをマネジメントするために、医師や薬剤師とともに、薬剤についての複雑な判断を行っていた。がん性疼痛マネジメントにはチ

ーム医療が欠かせず、判断するチームメンバーや行為者を示しておく必要があった。

Conclusion

このアルゴリズムを作成して、疼痛マネジメントにおいて看護師が1つの行為を行う

ために、さまざまな観察と多岐にわたる判断を行っていることが明白になった。今後、実際に患者に適応し、このアルゴリズムの妥当性について明らかにする必要がある。

Structural Visualization of Expert Nursing: Cancer Pain Management

**Chitose Watanabe ^a, Makiko Uchiyama ^a
Mikako Takahashi ^a, Ekiko Sato ^a
Satoko Tsuru ^b, Hideo Dannoue ^b**

^a St. Luke's International Hospital

^b School of engineering, the University of Tokyo

INTRODUCTION

- **Pain is a very serious problem in cancer patients. Nurses play an important role in Cancer Pain Management to improve QOL of patients.**
- **The pain management is complicated : the choice of suitable drugs depend on each patient's condition and side effects of the drugs are often serious.**
- **Thus, supporting Guide for decision making is indispensable to assure a good nursing quality.**
- **We developed a novel algorithm of based on the practice of expert nurses in Cancer Pain Management.**

PURPOSES

- (1) Extract elements of nursing practical care regarding Cancer Pain Management.
- (2) Structuralize the relationship among each elements and develop algorithm for decision making in practice.

METHODS

- (1) Literature reviews and web searches.
- (2) Interviews with Pain Control Nurses, pharmacists and doctors.
- (3) Clarify the elements of cares in Cancer Pain Management.
- (4) Develop the algorithm for Cancer Pain Management.
- (5) Verify the algorithm with Pain Control Nurses.

RESULTS

- Whole system was derived from the World Health Organization's (WHO) analgesic ladder.
- Restructured algorithm consisted of following nodes: 202 of decision, 159 of choice, and 101 of action.

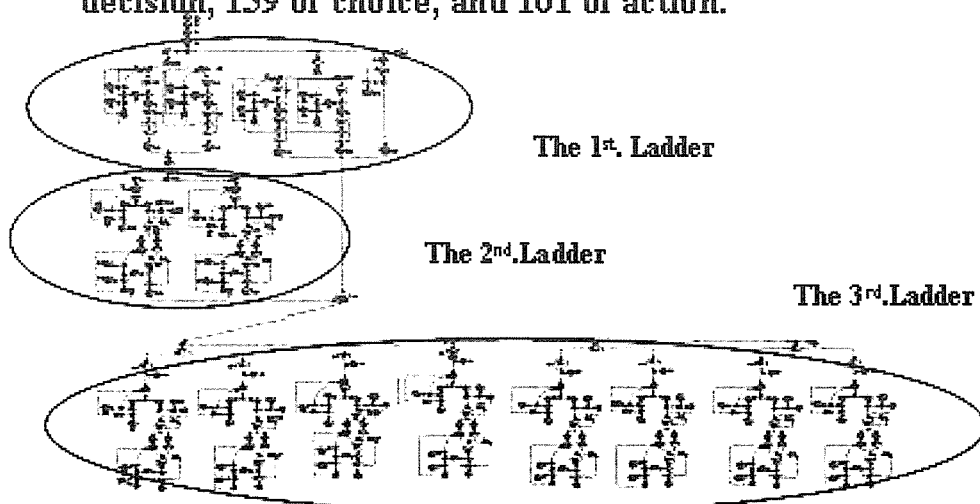


Figure1. Overview of Algorithm concerning Pain management

RESULTS

- Furthermore, expert nurses provided an important information to help doctors to choose suitable medications with a collaboration with pharmacists .
- The algorithm should also specify the roles of all the actors: doctor , nurse and pharmacist.

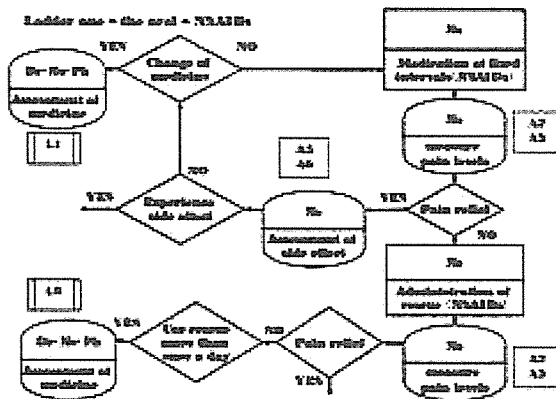


Figure2. A part of algorithm of Cancer Pain Management

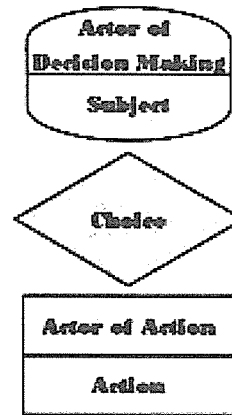


Figure3. Components of algorithm

CONCLUSION

- Expert nurses make multiple complex choices to take one action in Cancer Pain Management.
- The validation of our algorithm should be it to actual cancer patient's care.

Structural visualization of expert nursing: Development of Assessment and Intervention Algorithm for Delirium Following Abdominal and Thoracic Surgeries

Shigeaki Watanuki^a, Tomiko Takeuchi^b, Yoshimi Matsuda^b, Hidenasa Terauchi^b,
Yukiko Takahashi^b, Mitsuko Goshima^c, Yutaka Nishimoto^b, Satoko Tsuru^d

^aAino University Faculty of Nursing and Rehabilitations, Osaka, Japan;

^bGifu University School of Medicine Nursing Course, Gifu, Japan; ^cGifu University Hospital, Department of Nursing, Gifu, Japan;

^dUniversity of Tokyo Graduate School of Engineering, Tokyo, Japan

Opening Summary

Assessment and intervention algorithm for delirium following abdominal and thoracic surgeries was developed based upon the literature review and interview and discussion with expert healthcare professionals. The structure of assessment and intervention algorithm included prediction/prevention, assessment, and intervention components. Future validation study needs to aim at accumulation of clinical outcome data, clarification of relative weight of various risk factors, and clinical utility of algorithm.

Keywords: delirium, risk factors, perioperative care, algorithm

Introduction

The purpose of this study was to develop a standardized assessment and intervention algorithm for delirium following abdominal and thoracic surgeries. Postoperative delirium is generally associated with patients' decreased functional reserve, patient safety issues, patient/family distress, and elevated healthcare costs. Despite the high incidence of post-surgical delirium, evidence for assessment and intervention algorithm for such condition was limited in the literature.

Methods

Literature and web resources were searched as regards to the level of evidence. Health care professionals (nurses, surgeons, pharmacists) were also interviewed for their clinical knowledge and expertise. Finally, the investigators critically reviewed and discussed the above outcomes to reach a consensus and to develop a structured assessment and intervention algorithm in accordance with a notation method[1][2].

Results

The algorithm included the following three units. (1) preoperative prediction; (2) postoperative prevention and early detection; (3) management of delirium after its onset. A risk identification model for delirium[3] and care models for patients experiencing delirium[4-5] were modified to fit with abdominal and thoracic postoperative context. Risk factors of postoperative delirium included predisposing (age, medical history, comorbid conditions), facilitating (psychosocial and environmental), and precipitating (surgical type, emergent cases, length/type of anesthesia, intra-/post-operative

medications, critical conditions or complications that may necessitate intensive care) Assessment and intervention algorithm was structured in the following way. (1) Patients who are at high-risk for developing delirium necessitate close observation and intensive intervention to prevent delirium or manage potential risk factors for delirium. (2) Patients who have already developed delirium necessitate behavioral and safety management, symptoms management, in addition to identification and treatment of etiologic factors in collaboration with multi-disciplinary healthcare professionals.

Conclusion

Expert nursing of delirium assessment and intervention following abdominal and thoracic surgeries was visualized and structured in this study. Novice nurses can use this algorithm to improve their practice. Future study is needed to accumulate patient outcome data, to identify relative weight of various risk factors, and to test clinical utility and validity of the algorithm.

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Address for correspondence to

Shigeaki Watanuki, PhD, RN, Associate Professor
Aino University, Faculty of Nursing and Rehabilitations
4-5-5 Higashi-Ogda, Ibaraki, Osaka 567-0012, JAPAN
E-mail: watanuki-ind@ainu.ac.jp

Structural Visualization of Expert Nursing:



Development of an Assessment and Intervention Algorithm for Delirium Following Abdominal and Thoracic Surgeries

Watanuki S et al. (2006)

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**Shigeaki Watanuki^a, Tomiko Takeuchi^b,
Yoshimi Matsuda^b, Hidemasa Terauchi^b,
Yukiko Takahashi^b, Mitsuko Goshima^c,
Yutaka Nishimoto^b, Satoko Tsuru^d**



^a Aino University Faculty of Nursing, Osaka, Japan;

^b Gifu University School of Medicine Nursing Course, Gifu, Japan;

^c Gifu University Hospital, Department of Nursing, Gifu, Japan;

^d University of Tokyo Graduate School of Engineering, Japan

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Principal presenter's e-mail: watanuki-ind@umin.net

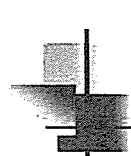
Summary

- An assessment and intervention algorithm for delirium following abdominal and thoracic surgeries was structured and visualized based on the literature and clinical expertise.
- The algorithm was patient-tailored and risk-stratified, so that prediction/prevention, assessment, and intervention can be carried out.
- Accumulation of clinical outcome data is necessary in the future validation studies, including identification of the relative weight of risk factors and validating the utility of the algorithm.



Introduction

- Postoperative delirium is generally associated with patients' decreased functional reserve, safety issues, patient/family distress, and elevated costs.
- Despite the high incidence of postoperative delirium, the evidence for postoperative delirium was limited in the literature.
- A standardized assessment and intervention algorithm for delirium following abdominal and thoracic surgeries was developed based upon the current available knowledge-base.



Methods:

Development of an evidence-based algorithm

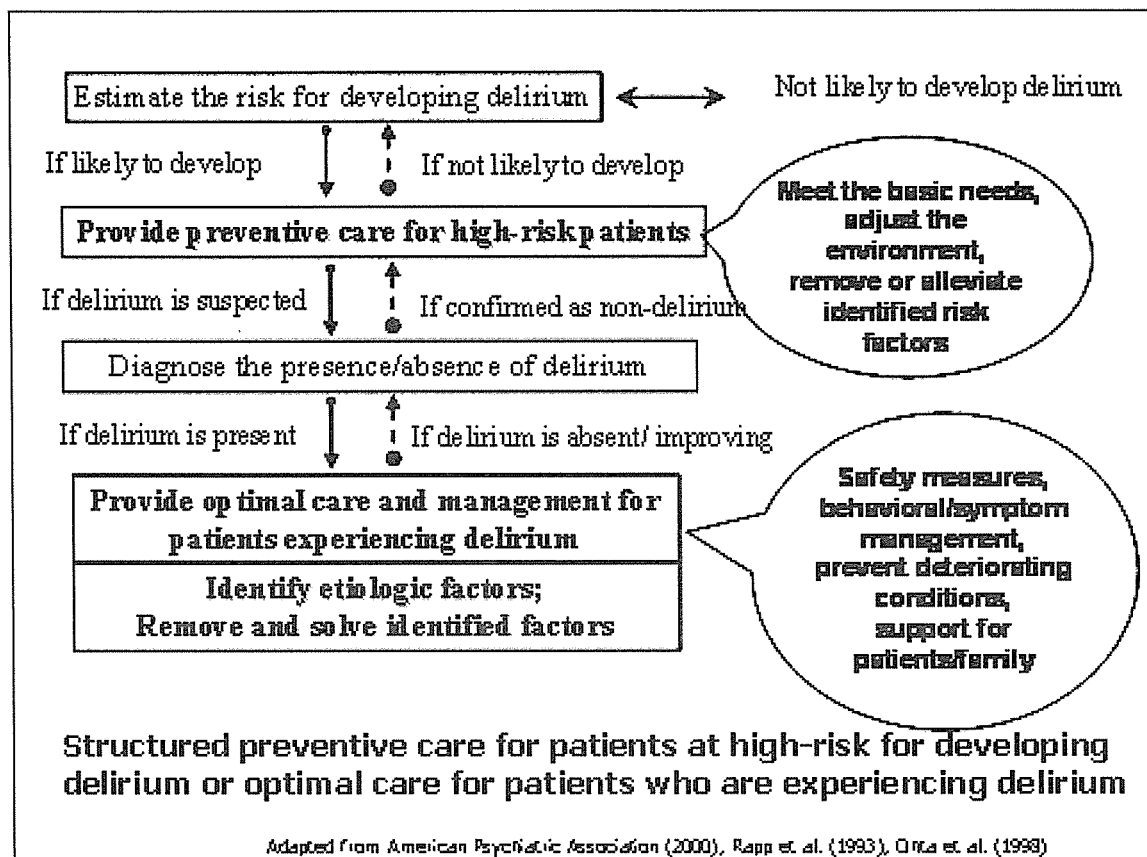
- **The current knowledge-base was extracted from...**
 - The literature and the web (e.g., a delirium risk identification model and nursing care protocols)
 - Clinical expertise (interview with healthcare professionals).
- **The sources were critically reviewed by...**
 - Utilizing a consensus-based approach.
 - Structuring assessment and intervention algorithm.
 - Tailoring to the abdominal and thoracic surgery context.

Watanuki S et al. (2008)

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Results: The overall structure of the algorithm

- **The algorithm included three units:**
 1. preoperative prediction;
 2. postoperative prevention and early detection; and
 3. management of delirium after its onset.
- **The algorithm included:**
 - 7 "action nodes,"
 - 2 "thinking nodes,"
 - 3 "choice nodes,"
 - 3 "assessment tables," and 2 "logic tables."



Results: Risk factors of postoperative delirium among thoracic/abdominal surgery patients:

Predisposing factors:

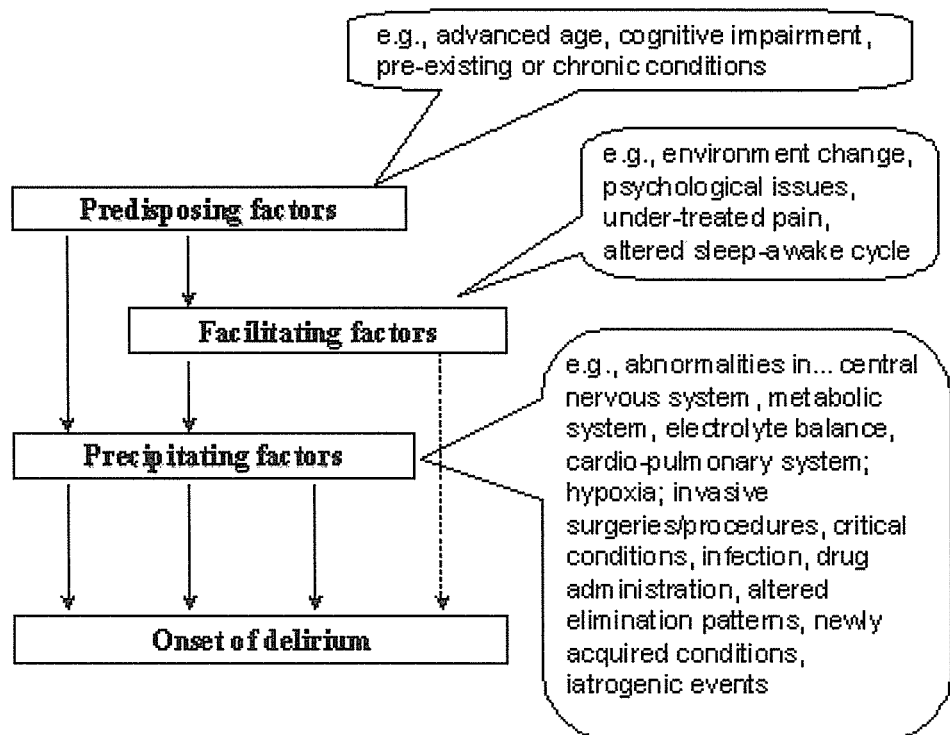
- Age 70 years or older
- Present history of illness:
 - myocardial infarction, angina
 - abdominal aneurysm
 - esophagus or pancreatic cancer
- Past medical history
 - Cerebrovascular infarction or bleeding
 - Brain injury (epidural/subdural hematoma)
 - Parkinsonism
 - Cerebrovascular dementia or Alzheimer-type
 - Past history of delirium onset
 - Psychiatric conditions
 - Depressive symptoms
 - Diabetes mellitus; Dialysis; Dehydration
 - Visual and auditory disorders

Facilitating factors:

- Psychosocial and environmental

Precipitating factors:

- Surgical types; Emergent cases
- Length/Type of anesthesia (6hrs+)
- Critical conditions or ICU stay
- Complications
- Intra-op medications:
 - Use of Halothane (6hrs+); Sevoflurane; Isoflurane; Enflurane; Propofol
- Post-op medications:
 - Anticholinergics
 - Dopamin agonists (Amantadine, Levodopa)
 - Tricyclic antidepressant (Clomipramine)
 - Benzodiazepines (sedative/hypnotics)
 - H₂ blockers



Multiple layers of delirium risk factors

Adapted from Lipowski (1990), Isse et al. (1996), & Inouye (1996)

An example of postoperative care protocol for patients at high-risk for delirium, or experiencing delirium

Postoperative Day (POD)	Base-line	Day of surgery	POD1	POD2	POD3	POD4+
Patient event	Admission <-ICU or High Care Unit->... Surgery ... <- Step Down Unit -> <- Discharge ->					
Risk prediction: - Predisposing factors - Precipitating factors	X	X (intra-op)	X (post-op)	X	X	X
Preventive care	N/A	X	X X	X X	X X	(X X)
Identify high-risk patients; early detection and intervention	N/A	(X)	(X)	(X)	(X)	(X)
Identify onset of delirium	N/A		(X)	(X)	(X)	(X)
Optimal care and management for pts experiencing delirium.	N/A		(X)	(X)	(X)	(X)
			Identify and treat etiologic factors			

Results:

Phase-specific and risk-stratified care protocols

Level of risk Peri-operative phase	Low-risk	High-risk
Preoperative	Standard care: Set A	Standard care: Set A
Postoperative		+ Programmed care: Set B
After onset of delirium	Standard care: Set A + Programmed care: Set B + Programmed care: Set C	

Standard care may include: providing care related to daily living (personal hygiene, bathing, elimination, transferring, eating, etc.), family support, instruction/education, using medical equipment.

Programmed care is a organized and structured care that may require specialized expertise to address the complex needs of patients.

Major Components of Risk-stratified Care Sets:

Standard Care Set A	Programmed Care Set B	Programmed Care Set C
Meet basic physiological needs Pain management Adjust audio-visual stimulation Coordinate psycho-social environment <i>Postoperative care plan also includes life-supporting and recovery-promoting care to address responses to surgical invasiveness</i>	Prevent delirium onset through ... Arrange an orienting environment Safety measures for physical/bodily injury Use NEECHAM Confusion Scale: <i>Postoperative care plan also includes: adequate use of medications, aggressive pain management, family support, and plan evaluation on every shift</i>	Arrange patient schedule (secure nap/rest time, better night sleep) Identify and remove/treat/alleviate etiologic factors through inter-professional teamwork Supportive care (use of clear communication, family education and support, validation approach) Enhanced safety measures Use of sedatives/hypnotics Consult psychiatrists, physicians, liaison nurses Evaluate and modify care plan on every shift

Implications:

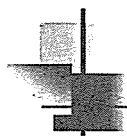
The algorithm provides nurses with risk-stratified and phase-specific assessment & intervention protocols.

1. For patients at high-risk for developing delirium:

- Closer observations and aggressive interventions
- Prevention or management of potential risk factors.

2. For patients who have already developed delirium:

- Management of patient symptoms and behavior
- Identification and treatment of etiologic delirium factors
- Inter-professional collaboration



Conclusions

- Expert nursing of delirium assessment and intervention following abdominal and thoracic surgeries was visualized and structured.
- Novice nurses may be able to use this algorithm to improve their practice.
- Accumulation of patient outcome data is needed to identify the relative weight of various risk factors and to test clinical utility and validity of the algorithm.

Structural visualization of expert nursing: Diabetes self-management education program

Megumi Higashi^a, Teruko Kawaguchi^b, Etsuko Yokoyama^b, Miho Ota^c,
Akiko Ito^d, Michiyo Ryota^e, Satoko Tsuru^f

^a Surugadai Nihon University Hospital, Tokyo, Japan, ^b The Japanese red cross College of Nursing, Tokyo, Japan,

^c School of Nursing, Tokyo Women's Medical University, Tokyo, Japan, ^d Tokyo Women's Medical University Hospital, Tokyo, Japan,

^e Nakano general Hospital, Tokyo, Japan, ^f School of engineering, The University of Tokyo, Tokyo, Japan

Opening Summary

In the Japanese clinical background, expert nursing and, at the same time, quality and safety assurance are demanded. To provide nursing service with quality and safety assurance, structural visualization of the thinking, judgment and behavior processes of nursing practice and standard application through development of IT applied systems are required. We have discussed and developed the structural visualization of programmed care in the field of diabetes self-management education, which is one of expert nursing cares. In this article, we report the programmed care for dietary therapy.

Keywords: Diabetes self-management Education, Algorithm, Programmed Care, Dietary therapy

Purpose

The purpose of this study was to develop structural visualization of the thinking, judgment and behavior processes of expert nursing practice in diabetes self-management education, using an algorithm notation method for programmed care.

Methods

Discussion on diabetes self-management education was repeatedly conducted based on the practice experience of expert nurses in the field of diabetes and researchers, using the studies of Prochaska et al (1983) and Kawaguchi (1994) as reference. Focusing on the "action" of implementing dietary therapy taken by the patients, and the "thinking" of the patient on what and how to make the efforts, the data were organized and an algorithm was developed.

Results

First, assess whether the patient is implementing dietary therapy along with a nurse. If the patient is implementing dietary therapy, assess whether the dietary therapy is implemented according to the content prescribed by health personnel or according to the patient's own preference. If the therapy is implemented according to the prescription of health personnel, conduct monitoring for the periods "less than 1 month from the start of action", "one to less than 6 months", and "six months or longer". On the other hand, if the patient is not implementing dietary therapy, assess whether the patient has received diabetes

education in the past or is receiving dietary therapy for the first time. Next assess the state of psychological preparation regarding the implementation, conduct monitoring according to individual situation, assess the status of implementation and the disincantive factors, and then repeat short-term and medium-term monitorings.

Discussion

Since long-term intervention is necessary for the patient to implement and sustain self-management behaviors, the characteristic of this programmed care is that its focus is placed on the patient's behaviors as well as psychological preparation. By developing an algorithm for the above parameters, it is possible to reduce the variation in judgment of nursing intervention due to degree of experience, and to provide support based on the daily living of the patient. In the future, the assessment items will be further refined to realize a higher level of evidence-based care.

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Address for correspondence

Megumi Higashi: Surugadai Nihon University Hospital
1-8-13 Kandasurugadai, Chiyoda-ku, Tokyo 101-8309, Japan
TEL: +81-3-3293-1711 E-Mail: chorin@med.nihon-u.ac.jp

高度看護実践の可視化 糖尿病自己管理教育プログラム

東めぐみ¹⁾・河口てる子²⁾・横山悦子²⁾・太田美帆³⁾
伊藤暁子⁴⁾・両田美智代⁵⁾・水流聡子⁶⁾

駿河台日本大学病院¹⁾・日本赤十字看護大学²⁾・東京女子医科大学看護学部³⁾
東京女子医科大学病院糖尿病センター⁴⁾・中野総合病院⁵⁾
東京大学大学院工学系研究科化学システム工学専攻⁶⁾

キーワード：糖尿病自己管理教育・アルゴリズム・プログラムドケア・食事療法

1. はじめに

現在、医療の現場において高度な看護実践が求められている。そのため、看護の質や安全を保証して確実に看護サービスが提供できるように IT を活用したシステムの開発が必要だと考えられており、高度な看護実践の思考、判断、行為のプロセスなどを構造的に可視化することが必要である。今回、糖尿病自己管理教育におけるプログラムドケアを討議した結果、看護実践を可視化することができた。ここでは、食事療法におけるプログラムドケアについて報告する。

2. 目的

本研究の目的は、糖尿病自己管理教育における高度な看護実践の思考、判断、行為のプロセスなどを構造的に可視化し、プログラムドケアのアルゴリズムの開発を行うことである。

3. 研究方法

Prochaska (1992) らと河口 (1994) の研究と、研究者らの実践経験から得た患者の過去の体験をもとに討議を繰り返し行った。また、「食事療法を実行している」という患者の食事療法の行動と、患者は何をどのように努力しているのかといった「思い」に焦点をあてて整理し、アルゴリズムの開発を行った。

4. 倫理的配慮

討議を行う上で、患者や看護師のプライバシーが守られるように配慮を行った。また、必要外の情報は記録に残さないように配慮を行った。

5. 結果

アルゴリズムの概要は以下のようになる。

まず、看護師は患者とともに食事療法を実行しているか査定する。患者が食事療法を実行していれば、その内容が医療者の指示通りに行っているか、自分なりにやっているかど

うかを査定する。医療者の指示通りに実行していれば「行動を始めて1ヶ月未満」「1ヶ月以上～6ヶ月未満」「6ヶ月以上」の各期間に応じてモニタリングを行う。一方、食事療法を実行していない場合は、過去に糖尿病教育を受けたことがあるか、食事療法は初めてであるかを査定する。次に実行に対する患者の心理的準備状態を査定し、状態に応じたモニタリングを行い実行状況や阻害要因を査定し、短・中期モニタリングを繰り返し行う。

6. 考察

本研究において糖尿病自己管理教育における高度専門看護実践を可視化することができた。

これらは、患者自身が自己管理行動を実行し維持してゆくことへの長期的な介入が必要となるため、「食事療法を実行している」「過去に教育を受けたことがある」などの患者の行動と、「いずれはやるつもりである」などの心理的準備状態に焦点を当てている点が特徴的であると考えられる。また、上記のアルゴリズム化により、看護師の介入における経験年数などによる判断のばらつきを低減できると共に患者の思いや生活に沿った援助が可能になると考えられる。今後は査定項目をさらに検討することで、より根拠のあるケアが可能になると考えられる。

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