Expressive aphasia in glioblastoma multiforme patients: An application of content methodology

By Emily P. Christoffersen and Donna L. Wells

Abstract

Approximately one-third of patients with glioblastoma multiforme experience aphasia (Kraemer & Bullard, 1994). This loss of language abilities can be a major source of frustration for patients. Their quality of life is affected by the inability to interact with others. In this paper, an examination of the phenomenon of expressive aphasia will be conducted through the application of the content methodology process. Content methodology is a process for developing nursing knowledge, which strives to bridge the gap between theory, research and practice (Dawson & Wells, 1992). This process will guide in the development of substantive content for practice. An assessment tool and intervention plan will be presented.

In 1996 there will be 17,900 new cases of primary brain and central nervous system tumours diagnosed in the United States (Armstrong & Gilbert, 1996). A similar rate of diagnosis is found in Canadian populations (Mao, Desmeules, Semenciw, Hill, Gaudette & Wigle, 1991). Approximately 65% of these diagnoses will be brain tumours arising from astrocytes such as glioblastoma multiforme (Armstrong & Gilbert, 1996). Glioblastoma multiforme (GBM) is a high grade, malignant form of astrocytoma (Kraemer & Bullard, 1994; Willis, 1991). GBM are highly anaplastic, infiltrating tumours (Kraemer &

Bullard, 1994), the etiology and pathophysiology of which remain undetermined (Thapar & Laws, 1995). The most commonly experienced clinical features of GBM are headaches, cognitive dysfunction, dysphasia, extremity weakness, and seizures. Patients with GBM have the shortest survival rate of all primary brain tumours (Kraemer & Bullard, 1994); an average of only 12-18 months after diagnosis (Guthrie & Laws, 1994; Willis, 1991).

There are many cognitive and functional deficits that may be manifested in patients with GBM. Approximately 33% of patients with GBM experience aphasia (Kraemer & Bullard, 1994) which has serious effects on a patient's quality of life. The ability to express one's feelings and needs and to interact with loved ones becomes vitally important when a person is faced with a life-threatening illness such as a brain tumour. Goodglass (1993) stated that "patients with aphasia find themselves abruptly crippled in their ability to interact with... those around them" (p.7).

The loss of language abilities that occurs in aphasia is a major source of frustration for patients, as well as nurses and families. We, as nurses, have seen patients struggle to express themselves, unable to speak or speaking words that they had not intended. The importance of language expression has also been observed in the statements of family members. Families have said: "It's like she is no longer herself, she can't even talk to me"; or "I just wish he could say that he loves me, I need to hear that again." These expressions of frustration inspired the authors to investigate expressive aphasia in patients with GBM and develop content for knowledge-based practice.

Nurses are responsible for planning and providing patient care that is based on knowledge derived from theory, research and clinical practice. Content methodology is a systematic way of bridging the gap that often exists in nursing between theory, research and practice. The aim of this methodology is to develop

ABRÉGÉ

L'APHASIE MOTRICE CHEZ LES PATIENTS ATTEINTS DE GLIOBLASTOME MULTIFORME: UNE APPLICATION DE LA MÉTHODOLOGIE DES CONTENUS

Environ un tiers des patients atteints de glioblastome multiforme souffrent d'aphasie (Kraemer et Bullard, 1994). Cette perte des compétences langagières peut devenir une importante source de frustration pour les patients. Leur incapacité d'interagir avec les autres affecte leur qualité de vie. Dans cet article, on examine le phénomène d'aphasie motrice à la lumière de l'application de la méthodologie des contenus. La méthodologie des contenus est un processus qui favorise le développement des connaissances infirmières et s'efforce de combler le fossé entre la théorie, la recherche et la pratique (Dawson et Wells, 1992). Ce processus permettra d'orienter le développement d'un contenu essentiel pour la pratique. Il présente également un instrument d'évaluation et un plan d'intervention.

Emily Christoffersen

Donna Wells

Emily Christoffersen, Rn, BScN, wrote the forerunner of this paper while enrolled in the Masters of Nursing program at the University of Toronto. Currently residing in Ohio, she has interrupted her graduate program. Donna Wells, RN, PhD, is assistant professor, Faculty of Nursing, University of Toronto.

very specific content that will guide nurses as they care for their patients. This paper will briefly describe the content methodology process and then apply it to the examination of expressive aphasia in patients with GBM. Expressive aphasia will be looked at in some detail and an assessment tool and interventions for use with aphasic patients with GBM will be presented. The paper will conclude by identifying the need for future investigations.

The content methodology process: Definition and application

Content methodology aims to relate the current knowledge base outlined in research or theory-based literature with the practice of nursing. Dawson, Wells and Kline (1993) describe that the purpose of the content methodology process is "to define practice content in relation to phenomena of interest to nurses and for which little specific substantive nursing literature exists regarding caregiving" (p.14). It is an iterative process in which clinical experience is integrated with knowledge gained from the theoretical and research literature. Dawson and Wells (1992) delineated several steps to this rigorous process (see Table One).

It is important to note that the assessment tool and interventions that are developed using content methodology emphasize patient abilities, not disabilities. This perspective is positive and affirming for both the patient and the nurse. Nursing is concerned with enhancing patients' well-being, which involves optimizing the use of their abilities. Dawson et al. (1993), describe this abilities-focused approach as enablement. They claim that this perspective "can foster meaningful life experiences for individuals" (p.2).

Step One: Identification of the behaviours of interest

The first step of the content methodology process includes the recognition and identification of certain behaviours in the patient. That is, the nurse recognizes that the patient is displaying unusual behaviours which are determined to be relevant, important and amenable to nursing intervention. Patients with GBM who are experiencing expressive aphasia display many behaviours that fit these criteria.

Clinical experience has shown that the patients with GBM may display behaviours ranging from word-finding difficulties to speaking the incorrect words to complete absence of expressive abilities.

Step Two: Description of aphasia and related behaviours, and definition of expressive aphasia

This step of the content methodology process requires that the nurse read the available literature directly relevant to the phenomenon of interest, commencing with general texts and then narrowing the reading to the more specific empirical research. The nurse then describes the phenomenon and the related patient behaviours and defines the phenomenon.

The general literature on aphasia mentions that neoplasms may be a potential cause, and the general neuro-oncology literature mentions that patients are often affected by aphasia. However, the authors were unable to find any empirical research that specifically focused on aphasia in the GBM patient population. A review of the more general aphasia research revealed that it was often inapplicable because (a) the population was different (e.g., head injury), (b) the study period was too long for use with GBM patients, or (c) the goal of the study was based on rehabilitation. Ideally, content methodology

is meant to be applied using literature or research that is specific to the phenomenon of interest as demonstrated in the determined population. That is, literature or research regarding expressive aphasia in patients with GBM. But in this case, the development of the assessment tool and the interventions had to be based on clinical experience and the general aphasia literature that was available. Use of this general literature required that the authors be discerning and constantly aware of any differences that might occur when it is applied to patients with GBM.

Aphasia is impairment of the capacity to interpret and formulate language symbols (Boss, 1984a; Darley, 1982). It is caused by damage to the brain's dominant hemisphere (Adkins, 1991; Pimental, 1986), which may be of a vascular, neoplastic, traumatic, degenerative, metabolic or infectious origin (Boss, 1984a). The loss of language ability is multimodal (Adkins, 1991), incorporating verbal, written and gestural expression (Darley, 1982), and can range in severity from mild to severe (Adkins, 1991; Boss, 1984a; Pimental, 1986).

The two basic types of aphasia are receptive and expressive. The loss of expressive ability is related to damage to the Broca's area (Blanco, 1982), which is located in the left lower posterior frontal lobe of the brain (Goodglass, 1993). Receptive language ability is located in the Wernicke's area of the brain. This area is found in the temporal lobe of the dominant hemisphere (Boss, 1984a). While it is rare to find a pure form of aphasia, for ease of understanding and assessment, this content methodology is focused only on expressive aphasia, and further discussion of aphasia is limited to this type. An indepth discussion of the anatomy of language production is provided by Goodglass (1993).

Patients with expressive aphasia manifest specific behaviours. They may demonstrate nonfluent, telegraphic speech patterns (Adkins, 1991; Boykin, 1984; Pimental, 1986; Sloman, 1981) and decreased overall verbal output (Blanco, 1982; Boss, 1984a; Pimental, 1986). The term telegraphic describes speech in which substantive content is expressed, but articles, prepositions and conjunctions may be omitted (Boss, 1984a) as in, for example, "Go bathroom" instead of "I need to go to the bathroom." Similarly, written expression may also appear agrammatical and telegraphic (Goodglass,

Table One: Steps of the content methodology process

1. Identification of the behaviours of interest
2. Description of the phenomenon of interest and related behaviours as discovered from an extensive literature review and from clinical experience;
Creation or adoption of a definition of the phenomenon of interest
3. Identification of abilities threatened by the presence of the phenomenon of interest
4. Assessment of the presence or absence of threatened abilities.
5. Development of nursing interventions that maintain or enhance existing abilities, compensate for lost abilities and prevent excess disability.
6. Psychometric testing of assessment tool and nursing interventions.

Note: From "A Content Methodology for Advancing Gerontological Nursing Practice", by P.G. Dawson and D.L. Wells, 1992, Clinical Nurse Specialist, 6, p.86. Copyright 1992 by Williams and Wilkins. Adapted with permission of the authors.

1993). The patient may not be able to name objects (Adkins, 1991; Boss, 1984a; Pimental, 1986), although Blanco (1982) has stated that patients' object naming may be better than their spontaneous speech. There are inconsistencies in the literature concerning the ability to repeat language. Blanco (1982) stated that expressive aphasia results in difficulty with phrase repetition, but not with repetition of simple words. But Pimental (1986) described a poor ability to repeat all spoken language.

It is important to remember that in expressive aphasia, verbal comprehension is good (Blanco, 1982; Boss, 1984a; Pimental, 1986) and comprehension of written information is described as variable (Boss, 1984a; Pimental, 1986) or good (Blanco, 1982). Also, patients with expressive aphasia often recognize their mistakes and, therefore, may attempt to correct their language output (Boss, 1984a). However, the recognition of errors can cause them to feel frustration, depression, embarrassment, irritation and anger (Adkins, 1991; Boss, 1984a; Buckwalter, Cusack, Sidles, Wadle & Beaver, 1989; Keller, Tanner, Urbina & Gerstenberger, 1989).

After reviewing the literature, the following working definition of expressive aphasia was developed: Expressive aphasia is the loss of language ability resulting from damage to the Broca's area of the brain, which affects verbal and written expression of feelings and needs.

Step Three: Identification of threatened abilities

The third step in the content methodology process is to identify what patient abilities may be threatened by the presence of expressive aphasia. The identification of threatened abilities is based on knowledge resulting from the literature review and clinical experience. The threatened abilities must relate directly to the definition of expressive aphasia and the description found in the literature (see Figure One). It is critical that the threatened abilities are described

with clarity and precision in order to guide the development of a specific and detailed assessment tool and set of nursing interventions.

Expressive aphasia threatens interactional abilities that are important for the daily living of a patient with GBM. They include (a) verbal expression, encompassing object naming and identification, the ability to repeat single words, and the ability to describe; (b) written expression, encompassing the ability to identify objects and the ability to describe; and (c) the ability to gesture, encompassing the ability to identify objects. It is unclear in the literature whether the ability to gesture is considered part of expressive aphasia, but clinical experience indicates that some patients with GBM use gesture as a mode of expression. It is therefore included as a threatened ability.

Step Four: Assessment of expression abilities

The next step of the content methodology is the development or modification of a tool that guides the nursing assessment of the patient. The Expression Abilities Assessment Scale (EAAS) has been created as an assessment tool for use with patients with GBM (see Table Two). The development of the EAAS was based on the previous three steps of the content methodology process. It directly reflects the threatened abilities that were identified in Step Three. The goal of this tool is not to distinguish between types of aphasia. Diagnostic aphasia scales such as the Boston Diagnostic Aphasia Examination are available for this purpose (Goodglass & Kaplan, 1983). The aim of the EAAS is to determine the presence or absence of the identified threatened abilities.

The EAAS is divided into three sections. Section I assesses verbal expression, that is, object naming, word repetition, and verbal description. The objects or word lists used should be familiar and easily identifiable to the patient. The four questions in Section I-i (object naming) assess the patient's ability to express basic needs or wants. For example, if the patient wants a drink, but is unable to request it in a complete sentence, "cup" may be sufficient to express the desire.

Question 1 seeks spontaneous responses from the patient. If the patient is unable to give the correct response spontaneously, questions 2-4 utilize various prompts in the hopes of eliciting a response. Justification for the use of each prompt can be found in the general aphasia literature. Section I-ii assesses the ability to repeat single words. Section I-iii assesses verbal description abilities and is ordered such that the questions become progressively more difficult. This will help to determine the patient's ability to express more complex language, such as thoughts and feelings. Section II determines a patient's ability to gesture and thus express needs in a non-verbal manner. Section III is an assessment of written expression. Some patients with expressive aphasia may retain the ability to convey information in writing, but not in verbal speech (Goodglass, 1993). As in Section I-iii, the tasks in the assessment of written expression become progressively more difficult for patients to complete.

Figure One: Interaction abilities threatened by expressive aphasia

There are certain conditions for using the EAAS. The patient must speak English. He or she must have adequate hearing and vision in order to communicate during the assessment. Hemiparesis of the dominant hand would limit the patient's writing abilities. In that case, Section III should be omitted from the assessment. Finally, the use of EAAS requires that the patient has retained his or her memory and recall abilities and has no receptive aphasia.

Step Five: Development of nursing interventions

As in the nursing process, in content methodology, assessment leads to intervention. Nursing interventions are developed based on the assessment findings. The available research is carefully read again to identify appropriate and specific interventions. If this literature does not exist, the development of interventions is based on clinical experience and/or the assessment results. The direct

Table Two: Expression Abilities Assessment Scale

Instructions for use:

The EAAS is to be used to assess the abilities of patients who have been found to have expressive aphasia. It is a fairly lengthy assessment tool and therefore the practitioner must allow adequate time for completion. Instruct the patient prior to beginning the assessment that this is not a test that he/she can pass or fail. It is merely a tool to help the nurse determine the most appropriate method to communicate with him/her. Also, instruct the patient that if at any time he/she becomes frustrated, that assessment can be discontinued and recommenced at a later time. It is recommended that the nurse note the section the patient was completing when frustration began, and the time since starting the assessment.

BACKGROUND INFORMATION	Object	Score
<i>This may be obtained from the patient, chart or family as appropriate.</i>	pencil	_____
First language _____	shoe	_____
Ability in English (<i>circle one</i>) poor fair good	cup (glass is acceptable)	_____
Educational level (<i>i.e. final grade completed</i>) _____	flower	_____
Occupation _____	chair	_____
	Total: _____ /25	
Dominant hand (<i>circle one</i>) left right	<i>If the patient scores 4-5 on all items, proceed to I-ii. If he/she scores 3 or less on all items, continue below.</i>	
Presence of hemiparesis (<i>circle one</i>) yes no	2. For each object in exercise a) for which the patient scores <3, repeat the exercise providing a phonetic cue. For e.g., pick up the pencil and ask "What is this?". If no verbal response, provide the phonetic prompt 'p'; pick up the shoe and provide the phonetic prompt 'sh'.	
if yes, which side? _____		
Presence of adequate vision (<i>circle one</i>) yes no		
Presence of adequate hearing (<i>circle one</i>) yes no		
<i>N.B. If patient has vision or hearing deficits, some of this assessment tool will be inappropriate and use must be altered accordingly.</i>	Phonetic cues elicit correct verbal response (<i>circle one</i>)	always sometimes never
SECTION I - VERBAL EXPRESSION	<i>If patient is always able to provide the correct verbal response with phonetic cueing, go to I-ii. If not, continue below.</i>	
I-i) Object Naming	3. For each object in exercise 2 for which the patient did not provide the correct response, conduct the following assessment of object naming ability using a written prompt. Show the patient the same objects from exercise 1 and a list of words including the name of one of the objects. Ask the patient to choose the word from the list and answer "What is this?".	
1. Completion of this section requires a pencil, a shoe, a cup/glass, flowers and a chair. Show the patient each object and ask "What is this?". Allow the patient 30 seconds to respond to each question.		
Score each response as follows:		
1= no answer attempted		
2= an incorrect answer or unclear utterance provided and patient makes no attempt at revision		
3= an incorrect answer provided and subsequent attempts at revision remain incorrect		
4= an incorrect answer provided, but subsequent attempts produce correct answer		
5= correct answer provided on first attempt.		
	Written prompts elicit correct verbal response: (<i>circle one</i>)	always sometimes never
	<i>If patient is always able to provide the correct verbal response with a written prompt, go to I-ii. If not, continue below.</i>	

connection between assessment and intervention is one of the strengths of using this process to develop content for nursing practice.

If the EAAS results indicate that abilities are present, ability-enhancing nursing actions are employed to support and promote the continued use of the patient's capacities (Dawson et al., 1993). If assessment demonstrates that there is a loss of abilities, ability-compensating activities are initiated. Compensatory nursing interventions are intended to assist

patients with an activity or manipulate other variables, such as the environment, to support the patient's abilities (Dawson et al., 1993). Ability-enhancing and ability-compensating nursing interventions for object naming, word repetition, verbal description, gestural abilities and written expression are described (see Table Three).

These interventions have been derived from both the literature and clinical experience. The goal of the interventions is to improve the quality of life for the patient with GBM. The

Table Two: Expression Abilities Assessment Scale (continued)

4. For each object in exercise 3 that the patient did not provide the correct response, conduct the following assessment of object naming ability providing a tactile cue. Place the object in the patient's hands and ask "What is this?". Allow the patient 30 seconds to reply.

Tactile prompts elicit correct verbal response (*circle one*) always sometimes never

Proceed to I-ii.

I-ii) Ability to repeat single words

Ask the patient to repeat the following words: nurse, bed, light, soap, food. State one word at a time and allow the patient 30 seconds to respond.

Repeated correct word: (*circle one*) always sometimes never

I-iii) Verbal description

Ask the patient to respond to the following questions. Allow him/her 30 seconds to answer the question and if there is no response, repeat the question once. These questions require progressively more descriptive ability to answer. Therefore, if the patient is unable to answer the first question, it is likely that he/she will have difficulty on the following questions as well. Do not proceed with the more difficult questions if the patient is having problems. Rather proceed to Section II and assign each omitted question a score of 1. Score each response as follows:

- 1= no answer/description attempted. Question not asked.
- 2= answer attempted - incomprehensible
- 3= answer provided but hesitates or struggles to provide words; some words are inappropriate or unclear
- 4= answer/description is clear but telegraphic or agrammatical
- 5= answer/description is fluent and clear.

Question	Score
"What is your name?"	_____
"Tell me the days of the week."	_____
"What colour is my blouse/sweater?"	_____
"Describe the room."	_____
Engage the patient in a longer discussion. Use his/her interests to guide the topic. For example, "tell me about your grandchildren" or "I hear you used to do a lot of gardening, tell me about that".	_____
Total:	_____/25

SECTION II - ABILITY TO GESTURE

Line up the objects used in Section I on a table. Ask the patient to point to the objects one at a time in response to a command such as, "Show me the pencil" or "Point to the shoe".

Pointed to the correct object: always sometimes never (*circle one*)

SECTION III - WRITTEN EXPRESSION

Omit this section if patient is unable to write due to physical limitations (hemiparesis) in dominant hand. Provide the patient with a large piece of unlined paper and a pencil. If the patient is unable to correctly respond to a question, it is likely that he/she will have difficulty on the following questions as well. Do not proceed with the more difficult questions if the patient is having problems. Rather, disregard the remainder of the assessment and assign each omitted question a score of 1.

Score each question as follows:

- 1= no attempt at writing, task not given to patient to perform
- 2= no legible letters
- 3= occasional letters are recognizable and correct for word; may be out of sequence
- 4= letters are clear, occasional letter may be out of sequence, but able to recognize word
- 5= writing is clear and legible, spelling is correct.

Question	Score
"Write your name."	_____

Show the patient three words, such as "baby", "house" and "clock". Ask the patient to copy each word in turn.	_____
---	-------

Ask the patient to write the following words as they are dictated; "bed", "eating" and "pain". Say the words one at a time. Allow the patient sufficient time to complete the task, before saying the next word.	_____
--	-------

Show the patient pictures of objects such as a car, door and telephone and ask the patient to write the name of the object.	_____
---	-------

"Write a sentence about...". Choose a topic of interest to the patient.	_____
---	-------

Total score: _____/25

Table Three: Nursing interventions

OBJECT NAMING ABILITY

Ability enhancing interventions

These interventions should be used if the patient obtains a score of 20-25 on Section I-i of the EAAS.

- Provide adequate time for the patient to formulate answers. Do not respond for the patient or finish his/her sentences. (Adkins, 1991)
- Ask the patient only one question at a time. This allows for the time that the patient requires to answer. (Adkins, 1991)
- Do not insist on correct pronunciation. It is sufficient that the patient's expression of language is understandable.
- Encourage all efforts at communication even if they are inappropriate at times. (Easton, 1994; Boss, 1984b)

Ability compensating interventions

These interventions should be used if the patient scores less than 20 on Section I-i. The results of questions 2-4 determine which specific interventions to employ.

- If the patient is able to name the objects in question 2, provide him/her with a phonetic cue to encourage object naming. Cueing needs to be done repeatedly as cues may not be retained for longer than 30 minutes. (Patterson, Purell & Morton, 1988)
- If the patient is able to name objects in question 3, construct a word list of objects, names and actions that the patient can use to convey common needs or wishes. Encourage the patient to point to these words to help express his/her needs.
- If the patient was able to verbalize the names of objects when holding them, as in question 4, utilize this strategy with the patient as much as possible.

ABILITY TO REPEAT WORDS

Ability enhancing interventions

These interventions are appropriate if the patient is able to perform the repetition tasks in Section I-ii.

- Ask the patient to repeat words of common objects in environment, or significant individuals' names. These exercises should be done frequently throughout the day for short periods of time (Blanco, 1982). Repetition exercises should not include more than 10 words at a time. (Patterson et al., 1988)

Ability compensating interventions

There are no specific interventions to compensate for a lack of ability to repeat words.

VERBAL DESCRIPTION ABILITY

Ability enhancing interventions

These interventions are appropriate if the patient obtains a score between 20-25 on Section I-iii of the EAAS.

- Provide the patient with frequent opportunities to hear speech, for example, social conversation, the radio or the television. (Boss, 1984b)
- Stimulate conversation with the patient during routine care activities. Choose topics that are of interest to the individual.

Ability compensating interventions

These interventions should be employed if the patient scores less than 20 on Section I-iii of the EAAS.

- If the patient is having difficulty expressing full sentences, determine the content or intention of the sentence. For example, when the nurse uses an open statement, such as "I want a drink of _____", the patient may be able to complete the sentence with the specific word. (Boss, 1984b)
- Ask questions that are specific and require short responses.
- If the patient has only a one-word vocabulary, he/she may be taught to use other abilities such as the vocal cues of pitch, tone, speed and volume to express needs or feelings. (Code & Muller, 1988; Easton, 1994).

ABILITY TO GESTURE

Ability enhancing interventions

These interventions should be used when the patient is always or sometimes able to point to the correct object in Section II.

- Encourage the patient to point to objects in the environment. This will help the nurse to determine the needs and wishes of the patient.
- Alternatively, create a picture board which the patient may use to express needs and wishes by pointing to the appropriate picture. (Boykin, 1984; Pimental, 1986).

Ability compensating interventions

There are no specific interventions to compensate for a threat to the ability to gesture.

WRITTEN EXPRESSION ABILITY

Ability enhancing interventions

These interventions should be used if the patient scored between 20-25 on Section III of EAAS.

- Ensure that the patient has a pad of paper and a pencil or a chalkboard within reach of his/her bed.
- Ask the patient one question at a time and allow time for him/her to respond in writing.
- Encourage the patient to use this form of expression for needs, thoughts and feelings, particularly if the verbal abilities are impaired.
- Inform family, friends and other staff that the patient is using this form of expression.

Ability compensating interventions

These interventions should be used if the patient scored less than 20 on Section III of EAAS.

- If the patient has retained verbal expression abilities, the nurse or a family member may assist the patient by writing as he/she dictates. (Dawson et al., 1993)

intention is not rehabilitation nor complete language recovery. Rather, the aim is to facilitate interaction so that patients may express their feelings and needs to the nursing staff, family and friends to the best of their ability, and so that the nurse may provide high quality patient care.

Step Six: Future investigations

Psychometric testing needs to be conducted to determine the validity and reliability of the EAAS. This assessment tool also needs to be utilized in clinical practice. Such utilization would more definitively highlight the strengths and limitations of the tool. One aspect of the EAAS that may prove to be limiting in practice is the length of the tool. However, the time required to complete the assessment will vary according to the patient's abilities and the nurse's familiarity with the tool.

An evaluation of the proposed interventions also needs to be conducted. As many of the interventions have been adapted for use in the GBM population, their practicality, effectiveness and long-term effects need to be determined.

Currently, the assessment tool and the interventions have been reviewed by members of a multidisciplinary team who work with neuro-oncology patients. They believed that the EAAS and the interventions were appropriate for use in patients with GBM who were experiencing expressive aphasia.

Following the use of the assessment tool and implementation of the interventions, it would be helpful to look at the overall effects. That is, has the patient, family or

nurse benefited from addressing the issue of expressive aphasia? Have the interventions improved the quality of life for the patient and family? Are there other ways of achieving the same results?

Conclusion

The care of patients with glioblastoma multiforme is challenging. When patients are unable to convey their feelings and needs due to expressive aphasia, the challenge is even greater. Nurses have a responsibility to provide knowledge-based care to their patients. When faced with an issue or phenomenon that is not fully developed in the literature, nurses must be prepared to engage in the work that is required to promote the progression of knowledge. The phenomenon of expressive aphasia in patients with GBM was found to be underdeveloped in the literature. Application of the content methodology process was an effective way to examine this clinical phenomenon and develop content for nursing practice. The development of the assessment tool and interventions will act as an initial step in our understanding of expressive aphasia in patients with glioblastoma multiforme.

Acknowledgements

The authors would like to express their appreciation to Deborah Mings, advanced practice nurse, and Diana Baylon, occupational therapist, both from the Ontario Cancer Institute/Princess Margaret Hospital for their assistance with this project, and to Barbara Bauer for her editorial support.

References

- Adkins, E. (1991). Nursing care of clients with impaired communication. **Rehabilitation Nursing**, **16**, 74-76.
- Armstrong, T.S., Gilbert, M.R. (1996). Glial neoplasms: Classification, treatment, and pathways for the future. **Oncology Nursing Forum**, **23**(4), 615-625.
- Blanco, K. (1982). The aphasic patient. **Journal of Neurosurgical Nursing**, **14**, 34-37.
- Boss, B.J. (1984a). Dysphasia, dyspraxia and dysarthria: Distinguishing features, part I. **Journal of Neurosurgical Nursing**, **16**, 151-160.
- Boss, B.J. (1984b). Dysphasia, dyspraxia, and dysarthria: Distinguishing features, part II. **Journal of Neurosurgical Nursing**, **16**, 211-216.
- Boykin, G. (1984). Strategies for increasing communication with the dysphasic patient. **Dimensions of Critical Care Nursing**, **3**, 279-287.
- Buckwalter, K., Cusack, D., Sidles, E., Wadle, K., Beaver, M. (1989). Increasing communication ability in aphasic/dysarthric patients. **Western Journal of Nursing Research**, **11**, 736-747.
- Code, C., Muller, D. (Eds.). (1989). **Aphasia Therapy**. (2nd ed.). London: Cole and Whurr.
- Darley, F. (1982). **Aphasia**. Philadelphia: WB Saunders.
- Dawson, P., Wells, D. (1992). A content methodology for advancing gerontological nursing practice. **Clinical Nurse Specialist**, **6**, 85-88.
- Dawson, P., Wells, D., Kline, K. (1993). **Enhancing the Abilities of Persons with Alzheimer's and Related Dementias: A Nursing Perspective**. New York: Springer Publishing.
- Easton, K.L. (1994). Distinct probabilities. **Rehabilitation Nursing**, **19**, 303-304.
- Goodglass, H. (1993). **Understanding Aphasia**. San Diego: Academic Press.
- Goodglass, H., Kaplan, E. (1983). **The Assessment of Aphasia and Related Disorders** (2nd ed.). Philadelphia: Lea & Febiger.
- Guthrie, B., Laws, E. Jr. (1994). Prognostic factors in patients with brain tumours. In R. Morantz & J. Walsh (Eds.), **Brain Tumours: A Comprehensive Text**. New York: Marcel Dekker.
- Keller, C., Tanner, D., Urbina, C.M., Gerstenberger, D. (1989). Psychological response in aphasia: Theoretical considerations and nursing implications. **Journal of Neuroscience Nursing**, **21**, 290-294.
- Kraemer, D., Bullard, D. (1994). Clinical presentation of the brain tumour patient. In R. Morantz & J. Walsh (Eds.), **Brain Tumours: A Comprehensive Text**. (pp.183-211). New York: Marcel Dekker.
- Mao, Y., Desmeules, M., Semenciw, R.M., Hill, G., Gaudette, L., Wigle, D.T. (1991). Increasing brain cancer rates in Canada. **Canadian Medical Association Journal**, **145**(12), 1583-1591.
- Patterson, K., Purell, C., Morton, J. (1988). In C. Code & D. Muller (Eds.), **Aphasia Therapy**. (2nd ed.) (pp.76-87). London: Cole and Whurr.
- Pimental, P. (1986). Alterations in communication: Biopsychological aspects of aphasia, dysarthria, and right hemisphere syndromes in the stroke patient. **Nursing Clinics of North America**, **21**, 321-337.
- Sloman, R. (1981). Language disturbances due to brain lesions. **Australian Nurses Journal**, **11**, 39-41.
- Thapar, K., Laws, E. Jr. (1995). Tumours of the central nervous system. In G. Murphy, W. Lawrence & R. Lenhard (Eds.), **Textbook of Clinical Oncology**. (2nd ed.) (pp.378-410). Atlanta: American Cancer Society.
- Willis, D. (1991). Intracranial astrocytoma: Pathology, diagnosis and clinical presentation. **Journal of Neuroscience Nursing**, **23**, 7-14.