ORIGINAL ARTICLE

ACTA Vol. 10, No. 4, 2012, 467-480
NEUROPSYCHOLOGICA

Received: 18.04.2012
Accepted: 28.12.2012

A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

DOI:
10.5604/17307503.1030200

MODIFICATION OF COMMUNICATION BARRIERS IN THE REHABILITATION OF TBI PATIENTS

Grzegorz Mańko[1(A,B,C,D,E,F)], Katarzyna Markiewicz[2(A,B,D,E)], Marzena Chantsoulis[3(A,B,C,E,F)], Anna Rasmus[4(A,B,C,F)], Beata Łukaszewska[4(A,B,E,F)], Natalia Mirska[5(A,B,C,D)]

[1] Department of Ergonomics and Exertion Physiology, Institute of Physiotherapy, Faculty of Allied Health Sciences, College of Medicine, Jagiellonian University, Cracow, Poland
[2] Institute of Psychology, Maria Curie-Sklodowska University, Lublin, Poland
[3] Department of Physiotherapy, Academy of Physical Education, Wroclaw, Poland
[4] Institute of Psychology, University of Gdansk, Gdansk, Poland
[5] Andrzej Frycz Modrzewski Cracow University, Cracow, Poland

SUMMARY

Background Effective communication between TBI patients and caregivers is often a decisive factor in treatment outcome. The goal of our research was to evaluate the effectiveness of the "Academy of Life" therapy program in the rebuilding of damaged relationships, the reduction of barriers to effective communication, and the elimination of social isolation.

Material/ Methods: We studied 200 families, in which one member (a spouse or partner) had suffered a very severe TBI. The subjects were divided into two clinical groups: Group A, with symptoms of post-traumatic stress disorder (PTSD), and Group B, without PTSD. All subjects and their spouses took part in the "Academy of Life" Program. The methods used included a clinical interview, the Family Ties Scale, the Social Isolation Scale, and the "Communication Functions" subscale of the TBI QOL Battery. The subjects were tested at baseline and after 6 months of participation in the Academy of Life.

Results: At baseline all subjects showed marked cognitive, emotional, and social dysfunctions, major communicative barriers between spouses, and feelings of social isolation, much greater in Group A. In the second examination there was non-significant improvement in all these areas, with the exception of emotional family bonds in Group A, perhaps due to diminished insight.

Conclusions: The Academy of Life, despite its proven effectiveness in reducing cognitive dysfunctions in severe TBI patients, is relatively less effective in reducing barriers to effective communication and social isolation. It is also unable to fully rebuild damaged family and partner relations.

Key words: psychosocial rehabilitation, Academy of Life, neuropsychotherapy, health-related quality of life

INTRODUCTION

Successful communication with the patient (the Latin verb *communicare* means "to share, to make public, to converse") is often a determining factor for positive therapy outcome (Ong et al., 1995; Rosenberg, Lussier & Beaudoin, 1997; Pachalska, 1999). The literature describes different forms of communication, understood in the broadest context as a conscious and intentional sharing of information between one person – the "sender" – who conveys information (spoken, written, signaled), and another person who receives it 0 the "receiver." Communication is a bilateral process that enables the achievement of two principal goals. The first is a personal goal, which is achieved when the sender expresses their needs and desires, emotions and feelings, thoughts and opinions. This process allows the sender to systematize their concept of the world. Secondly, there is a social goal, in which the sender conveys orders to other people, shares opinions, beliefs and judgments, but also expresses feelings and an attitude towards their partner. The process of communication is the ground for the development of bonds between people. Thus communications barriers can in turn lead to the decay of these bonds and to the social isolation of the patient (Ong et al., 1995; Braddock et al., 1997).

MODEL OF THE COMMUNICATION PROCESS

Conversation is one of the most important forms of communication. The conversation is intended to share information between people who take turns playing the role of sender and receiver of messages (Pachalska, 1999; Sacks, 1992; Pachalska & Łukaszewska, 2011; Marta, 1996; Damico, Oelschlaeger & Simmons-Mackie, 1999). Conversation is by definition a social process, as it requires the involvement of at least two people. It is not only important what is said, but also who is sender and who is receiver. Communication is also an organized process, as it follows a certain rhythm involving a beginning, middle part and an end. Thus it is subject to systematic patterns, with well-defined, stable features (Sacks, 1992). Conversation is organized diachronically, i.e. a statement appearing in a given moment of the conversation should be motivated by or hold a reference to previous statements (Damico, Oelschlaeger & Simmons-Mackie, 1999). According to Simonds (1995), the lack of an expected response constitutes a significant violation of the rules of social coexistence. Another feature of a conversation is the fact that it is an intentional process, in that each involved person has their intentions, which may be more or less conscious, accurate and clear to others, and which all the people taking part in the conversation try to achieve in a more or less consistent way (Sacks, 1992; Marta, 1996). It is also a process determined by the knowledge, skills and attitudes of each person involved. An incompatibility between the message conveyed by the sender and the receivers ability to understand it usually results in a communication failure. On the other hand the receiver who does not take into consideration the communication capacity, intentions, and attitude of the sender will probably not un-

derstand their message fully (Pachalska et al., 2011A; Markiewicz & Pachalska, 2007).

During a conversation information is simultaneously conveyed on various levels and through diverse channels and modalities. These involve the oral channel (a spoken statement), graphic channel (a written statement), and/or a sensory channel (an utterance made using a sign language, or the reading of a text communicated by a code consisting of signals, such as the Braille alphabet, Morse code, etc.). The pieces of information conveyed simultaneously by the same person through different channels can be in tune with each other, confirming the sender's explicit intention, or they can be contradictory, as for example in the case of irony, jokes, or simply lies (Marta, 1996; Owczarek, Bazan & Mirska, 2012). In the case of a discrepancy, e.g. between the received oral content and the tone of voice, the receiver must decide, what part of the delivered information is true and why the discrepancy appeared. Such situations very often lead to misunderstanding, which can be a source of communication barriers (Pachalska et al., 2011B).

The message is a tool used to convey information, which a given person delivers in an conscious and intentional manner during the conversation, using words. According to contemporary linguists (Duszak, 1998) and neurolinguists (Kaczmarek, 2012), the term "message" is used in the context of conversation to denote the total statement of an individual during the conversation. It is the totality of the verbal behavior of an individual participating in a conversation. A precondition for the correct reception of the message is sufficient knowledge of the other speaker and the actual situation in which the conversation takes place. All these factors form the context, which almost always determines the final meaning of a given statement. Lack of sensitivity to the context results in misunderstandings, or even in undesired consequences, such as unexpected emotional responses from the receiver. This rule applies especially to a conversation between a doctor and a patient and their family, where each side approaches the conversation from a different perspective and has different goals. The patient experiences a thirst for information that shapes and dominates the context of this conversation from their perspective. The patient feels threatened and concentrates fully on looking for signs which may confirm or allay their concerns (Eaden, Ward, Smith & Mayberry, 1998). On the one hand, the physician, even the most sympathetic, maintains a professional distance and often responds to the patient's questions in a rather automatic, detached manner. On the other hand, the patient's caregiver, trying to secure themselves a comfortable situation, keeps the patient quiet, or speaks for them (the "speaking for" phenomenon) in moments of nervousness during this conversation, and does not allow the patient to satisfy their thirst for information. The discrepancy in the perception of the context leads to a situation in which normal conversation becomes impossible.

A second factor determining the perception of the message is the appearance and influence of a subtext. In many contexts we more or less knowingly deliver to the recipients different information from that contained in the message. This

occurs when the message involves a subtext, in other words, a statement beyond the pronounced words, lying "below the surface" of the message. The subtext is often either contradictory to the literal content of the message (as in the case of irony) or conveys the hidden intentions of the speaker, who for some reason does not wish to reveal them directly (this is a process sometimes described in a negative way as "manipulation"). The subtext is privileged on the substantive side, because it contains and reveals the real intention of the speaker, often challenging the literal content of the message.

The model of the communication process shown in Fig. 1 (Pachalska & MacQueen, 2002) provides a summary of the general principles of communication described above.

The communication process begins when a need for communication appears in the brain of one person, which results in the formation a communicable concept and the intention (plan, will) to share it with another person. Thus the first person adopts the role of the sender, and the other – of the receiver. We feel the need for communication with other people when we want to:

- share information;
- express emotions;
- invoke a specific reaction or behavior of the other person.

Needless to say, these three intentions do not necessarily exclude each other, but a thorough analysis of the grammar of various languages almost always reveals the coexistence of diverse grammatical structures (sometimes also lexical) that express diverse intentions of the sender. However, this problem belongs to the research field of linguistics and neurolinguistics, and thus lies beyond the limits of this paper.

In Fig. 1, the sender, having a message to pronounce "in their mind" (labeled "Notion 1") and sufficient motivation to share it, activates the areas of the brain

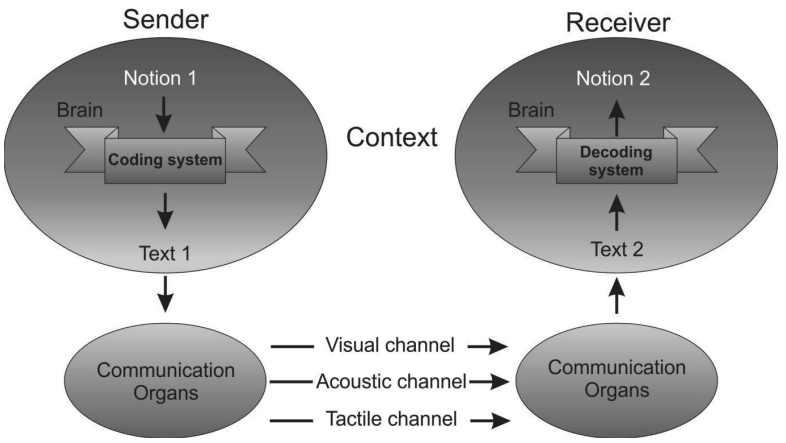

Fig. 1. Model of the communications process [Pąchalska and Kaczmarek 2012]

that choose suitable words and order them in grammatical structures. These areas are called, at the risk of some simplification, the "coding system" responsible for converting notions and intentions into texts. Text 1 is then created in the brain of the sender, and must be sent to the organs capable of transmitting it (primarily to the speech organ, but also to the hand when writing is concerned, gesticulation and signaled text). Simultaneously, the muscles of the face and body are activated to transmit non-verbal messages, supporting the statement with corresponding facial mimicry, e.g. the expression of surprise on the face, gestures, posture etc. As reception is based on observation, the message must be sent in a form perceptible for the receiver's sense organs. In practice, visual perception and hearing are mainly involved, but touch can also play a role in this process, and in some cases even taste and smell as well. Diverse signals containing elements of text and subtext may be transmitted simultaneously through different channels. Text 1, together with explanatory signals and the context, pass through the sensory organs to the brain of the recipient, where Text 2 is formed, and after being deciphered in an appropriate system (different from the coding system, but cooperating with it), it causes the appearance of Notion 2, being the final result of Text 2 in the recipient's brain. When the purpose of the communication is the transmission of certain information, a successful communication occurs when notion 2 and notion1 are synonymous. When a reaction by the recipient reaction is expected, the act of communication is considered successful when notion 2, acting as a motivating stimulus, triggers the desired action of the recipient.

COMMUNICATION BARRIERS

It sometimes happen in daily life that a conversation which has been efficient up to a certain point becomes chaotic. A barrier appears between the sender and the receiver, making further progress in bilateral communication difficult or even impossible. Such obstacles are called communication barriers.

According to Pachalska (2007), there are two models in the perception of communication barriers. It is especially important to understand the definitions of external and internal barriers ,using a cognitive approach.

As maintained by the cognitive approach:

(1) internal barriers are barriers that appear due to differences in the opinions of the individuals involved in the conversation, emotional tension between them, mistrust or misinterpretation of the messages conveyed to one another verbally and non-verbally. Such barriers occur on both sides of the communication process, i.e. in the sender and in the receiver.

(2) external barriers are barriers occurring in the immediate surroundings, such as loud music, loud conversations or street noise. Such barriers are quite easy to eliminate by changing the place of conversation or switching the music off.

The microgenetic approach defines these barriers somewhat differently:

- Internal barriers are a specific state of mind of the patient in the given moment, e.g. a state of catastrophic reaction, a condition in which a iatrogenic injury has occurred, etc. This condition is visible in the behavior of a person with a brain injury (Prigatano, 1999; Brown, 2005). Therefore, some authors think that it is a strategy for dealing with difficult situations (Pachalska, 2007; Roscigno & Van Liew, 2008; Kaczmarek, 2012).
- External barriers (2) are the consequence of the state of mind (Pachalska, 2007). They can (but do not have to) be connected to a real social situation, or opinions of the people involved in the conversation, emotional tension between them, mistrust or misinterpretation of the messages conveyed verbally and non-verbally (Brown & Tomaszewski, 2012).

The perception of the world in a given moment depends on the "momentary state of mind," or so called "momentary Me." In the case of a TBI patient, suffering from criticism disorders, this condition may not be based on a more stable vision of the world, and thus it may be the reason for the occurrence of external barriers in the process of communication with the environment. It is commonly agreed that a person experiencing such barriers exhibits functional changes on the behavioral level, as well as the emotional, social and identity level (Pachalska, 2007). Therefore, the evaluation of barriers to successful communication should be focused on:

- the brain structure, cognitive and emotional functions and the patient's behavior in relation to their internal aspect and their needs and experiences in the existential aspect;
- the external world, undertaking specific caretaking, aiding and supporting activities according to the rule of primum non nocere: "above all, do no harm" (Lezak, 1988).

The formation of barriers to effective communication between a TBI patient and their environment is also a bilateral process. On the one hand, complex disorders of cognitive processes, with special emphasis on speech disturbances, such as aphasia and pragnosia, and emotional and behavioral disorders, such as the frontal lobe syndrome, may lead to the development of a new style of communication in TBI patients that is incomprehensible for their partners. Thus internal barriers in effective communication may appear. On the other hand, this new style of communication, incomprehensible for the partner, and internal barriers manifesting themselves in the patient's behavior as external barriers (e.g. in the form of social isolation) lead to a feedback mechanism inducing communication barriers in the caregiver (Pachalska, 2007). These barriers may involve:

- transmission (the structure of the message), e.g. the use of incomprehensible words by a patient with post-traumatic aphasia, or contradictory utterances by a patient with frontal lobe syndrome;
- reception (understanding the message);
- metalanguage (which is often disturbed in TBI patients, and especially in patients with anosognosia);

- cooperation (which in the case of TBI patients is often difficult or even impossible; Kaczmarek, 2009).

Pachalska (1999) states that in the process of verbal communication by an unprepared speaker with a TBI patient, the principal rules of efficient communication are violated. Successful communication occurs when the recipient understands the message conveyed by the sender and vice versa. In other words, it is achieved when during the communication act the sender and the recipient not only exchange roles, but when the sender's information reflects their intention, and the receiver's interpretation corresponds with the sender's intentions and vice versa – when there is compliance between the sender's intentions and the intentions attributed to him by the receiver (Kaczmarek, 2009, 2012). But is this the only reason for the development of communication barriers between TBI patients and their families? There is no information about this in the literature, so research aiming at the description of diverse communication barriers appearing in the families of TBI patients is necessary.

Clinical observations and interviews with patients and their families reveal that the problems are usually caused by unfair criticizing, offending, threatening or excessive and unwanted expressions of sympathy. These issues often result in the patient giving up any rehabilitation, and the beginning of their social isolation. It is also important to verify the efficiency of the post-accession solution of the social reinforcement offered in the therapeutic program "Academy of Life" (Pachalska, 2007), aimed at the social reintegration of people with TBI-related disabilities, through the reduction of communication barriers and the improvement of communication effectiveness between family members.

MATERIAL AND METHODS

The research involved a total of 200 families, in which one of the partners had suffered a brain injury and had awakened from a long-term coma, i.e. lasting longer than 4 weeks.. The subject patients came from all over Poland. Following the medical examination, analysis of the medical documentation including neuropsychiatric diagnosis of post traumatic stress disorder and clinical interview, the patients were divided into two clinical groups, A and B. This classification was based on prior research indicating that PTSD patients (Post Traumatic Stress Disorders) who remember the accident form a specific group of individuals susceptible to re-experiencing the traumatic events in their waking and sleeping hours, and creating communication barriers resulting from this specific state of mind (Pachalska, 2007; Kee, 1996; Kolleck et al., 1997). The purpose was to verify the cognitive or microgenetic approach to the interpretation of the nature of the communication barriers.

Group A (n=101) involved patients who were previously diagnosed with PTSD and underwent corresponding neuropsychiatric treatment for its symptoms. This group consisted of 61 men and 40 women. The mean age of the men was 24.10 years (SD=11.02), and the average duration of formal education was 13.98 years

(SD=2.37). The mean age of the women was 22.11 years (SD=4.52), and the average duration of formal education was 12.92 years (SD=3,11). In this research group the women and the men did not significantly differ in terms of age and education.

Group B (n=99) consisted of patients who were not previously diagnosed with PTSD. This group consisted of 57 men and 42 women. The mean age of the men was 25.10 years (SD=12.37), and the average duration of formal education was 12.98 years (SD =3.46). The mean age of the women was 23.11 years (SD =7.43), while the average duration of formal education was 13.41 years (SD =4,23). In this group, also, the women and the men did not differ significantly in respect to age and education.

All these patients had suffered a severe traumatic brain injury, and together with their partners took part in the "Academy of Life" program carried out in the Center for Reintegration and Training of the Foundation for Persons with Brain Dysfunctions. This program is aimed at the reduction of social isolation and the reintegration of family ties in the cognitive, emotional and social aspects (Pachalska, 2007). The families were informed about the nature of the brain injury and its consequences, with special emphasis on disorders disturbing family ties. They were provided with information concerning the importance and types of support options, communication barriers between the TBI patient and his/her family and strategies for dealing with difficult situations. The families each received 10 sets of Communication Boards facilitating the initiation of conversation by the patient (Pachalska, 2008).

The following methods were used to evaluate the disorders:

- analysis of the documentation;
- clinical interview;
- the Family Ties Scale (Pachalska, 2008), which facilitates evaluation of the desynchronization of the cognitive bonds, destabilization of emotional bonds and destructurization of social bonds;
- the Social Isolation Scale, developed on the basis of the European research project called "QOLIBRI," evaluating the quality of life in TBI patients (Truelle et al., 2010; Pachalska, MacQueen & Tomaszewski, 2010), and especially various functional aspects of the patient related to withdrawal from social life
- a subscale entitled "Communicative Functions" from the Battery of Tests for Evaluating Quality of Life in TBI patients (Pachalska, 2008), enabling the evaluation of communication barriers between TBI patients and their partners.

The tests were administered twice, before and after the completion of the 6-month long "Academy of Life" program. All subjects gave their consent to be involved in the study.

RESULTS

The baseline examination (before therapy) showed a significant desynchronization of cognitive bonds, destabilization of emotional bonds and destructurization of social bonds (see Figure 2). The disruption of family ties was more pronounced in group A.

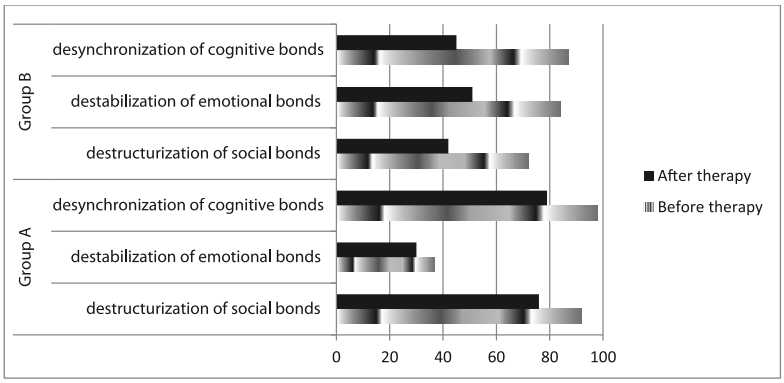

Fig. 2. Desynchronization of cognitive bonds, destabilization of emotional bonds and destructurization of social bonds in patients from groups A and B after the first test (before the therapy) and after the seconds test (after the therapy)

The follow-up examination (after therapy) showed reduced frequency of feelings leading to the desynchronization of cognitive, emotional and social bonds. However, the differences between groups were not statistically significant, except for the emotional aspect of family ties in group A (PTSD patients). The statistical significance of the inter-group differences in the last case can be explained by limited insight, because the heightened disorders in this respect do not allow for proper perception of the problem, as in group B patients (without such difficulties).

Communication barriers between TBI patients and their partners

At baseline there were major communication barriers with the partner who had undertaken the role of the caregiver (see Fig. 2). The barriers were much larger in the PTSD patients, who complained of being judged during conversations with their partners (offending, praising linked to judgment, ordering). The partners often avoided the problem (by changing the topic, consoling, criticizing and deciding about certain issues). The most commonly mentioned form of communication breakdown in the family was “speaking for” the patient.

The TBI patients also complained that their partners were deciding for them (by threatening, asking too often about their problems, giving advice or using logical reasoning to explain the necessity for behavioral changes that were often unacceptable for the patients). The patients seemed to think that these communication barriers were a form of invading the sphere of their identity, their own “self” (Pachalska, 2007).

The follow-up examination, conducted after the “Academy of Life” therapeutic program, showed a lower frequency of individual communication barriers. It is worth mentioning, however, that greater differences were obtained in the non-PTSD group, though the difference between the groups was significant only for such parameters as judging ($\chi^2 = 12.77$; p=0,000), including criticizing ($\chi 2 = 7.57$; p=0.006), offending ($\chi 2 = 14.9$; p=0.000), and threatening ($\chi 2 = 14.9$; p=0.000).

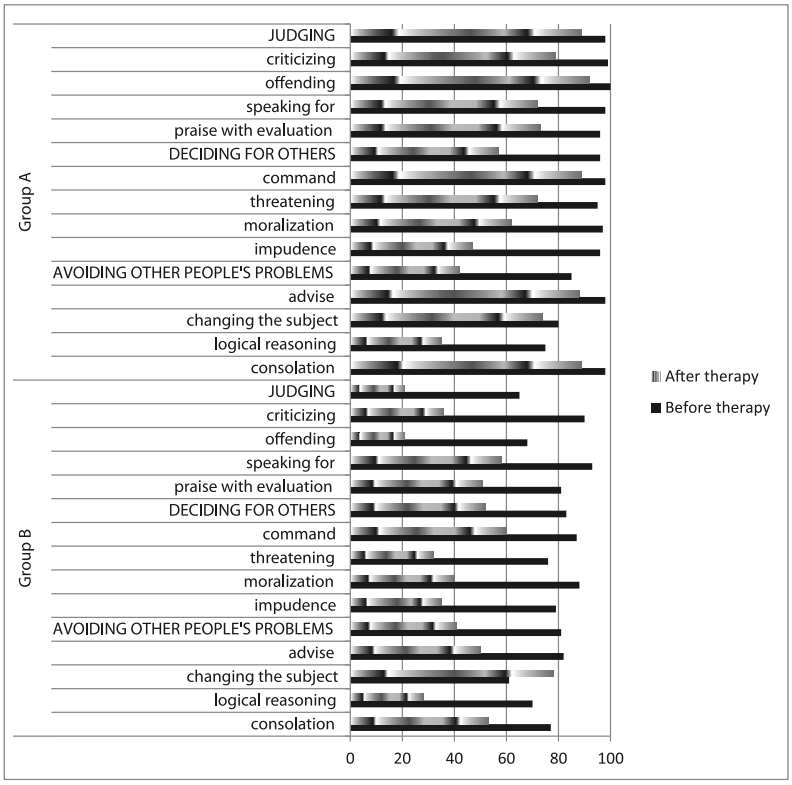

Fig. 3. Communication barriers between the post brain injury patients and their spouse/partner

DISCUSSION

The literature contains very few research papers analyzing the communication process taking place between the therapist, the patient and the family (Pachalska, 2007). Such a unique research project, in fact virtually one of a kind, evaluating the dynamics of the communication process among all members of the therapeutic team, was carried out by Pachalska and MacQueen (2002). The authors used an ethnographic method to describe the dynamics of the communication process between the patients and their families (Duszak, 1998), analyzing 26 hours of conversations recorded during diagnostic and therapeutic sessions, and in the patients' rooms. The interactions between patients and their caregivers and individual members of the therapeutic team were video-recorded, including two doctors (attending physician and the head of the department), a physical therapist, a neuropsychologist, a neurolinguist and a nurse.

As a result of this research, the authors concluded that one of the most frequent communication barriers results from a defensive stance adopted by one of the interlocutors. The speaker is listened to with the sole single intention of finding a weak point in their message, because the aim of the defending side is to survive and fight off the attack of the adversary.

The goals of the individual interlocutors were often significantly different. The patient wanted to gather reliable information on the prognosis and further course of the treatment and rehabilitation, and was not able to achieve it, and the information he obtained from the interlocutors was too general, incomplete, and partly misleading. The goal of the attending physician and the head of the department was to calm down the patient, considering the overload of their own duties. However, they did not give the patient the desired information for many possible reasons, e.g. lack of time, anxiety about the patient's mental condition (unless the clinical information was optimistic), belief that a patient who hadsuffered serious brain damage would not be able to understand the information, etc. The goal of the patient's partner was to mitigate the escalating conflict between the patient and the doctors, and to understand her own difficult situation. Unfortunately, this mediation was usually unsuccessful, because the partner was one of the involved parties (the patient's condition has serious consequences for the partner), they did not know anything about the neurobehavioral consequences of the brain injury, did not understand the nature of the patient's problems, and did not possess enough medical knowledge to have a professional conversation with the doctors.

Moreover, Pachalska and MacQueen (2002) observed that the main reasons for conversation failure were:

- impairment of the patient's pragmatic functions, caused by damage to the right hemisphere, manifested by changed or absent facial expressions, prosody dysfunctions (resulting in discussing the most important medical issues with the doctor in an indifferent tone), and failure to adapt the style of the statement to the given situation. At the beginning of the conversation with the doctor, the patient oftenn spoke in a way that made his interlocutor look for a hidden irony.
- undiagnosed and unsatisfied "thirst for information" on the patient's side, and focusing attention, for obvious reasons, only on their own condition. In many conversations the patient interpreted the doctor's gestures and words as signaling a bad prognosis for his condition, even if none of these were the doctor's intention.
- the discrepancy of the speakers' goals, accompanied by lack of understanding and adaptation to the capacity, limits and rights of the other speakers. The patients' complaint that the doctors did not provide them with necessary information to which they were entitled is to some extent justified, as well as the doctor's complaint that the patient made their work with other patients difficult and had too high expectations.

The results published by Pachalska and MacQueen (2002) are supported by the results obtained by our team. The communication barriers are mainly related to social pragmatics. It turned out that the optimal course of the communication process depends on social pragmatics, i.e.:

- what we say – does the content of the message correspond to the needs and rights of the patient?

- how we say it – do we choose the right words for the situation? Is our intonation pleasant, or can the patient sense aggression, indifference, etc. in our voice? Do the non-verbal signals confirm or negate and question the content of our message?
- who we talk to – is it a person who understands the message or not? Do they remember long, complex sentences or only short and simple ones? Is the patient a person who does not tolerate a commanding tone, or a manual laborer who does not understand technical terms?

Our research shows that the communication by the patient's bedside often leaves much to be desired. The main reasons for communication failure are an improper amount and quality of the delivered information, discrepancies between the doctor's and the patient's goals, lack of control over the subtext, and objectification of the patient.

A person who for some reasons fails to effectively communicate with other people does not belong fully to society (MacQueen, 2007). They fall into social isolation, thus considerably deteriorating their quality of life (Pachalska, 2008).

Disability caused by brain injury is the source of numerous problems connected with daily family and social life, concerning not only the patient, but also exerting a major influence on those who make up the patient's family unit. The following problems appear:

1. The decay of family ties, including desynchronization of cognitive bonds, destabilization of emotional bonds, and destructurization of social bonds.
2. Social isolation, connected with being under chronic stress due to many and diverse effects of the brain injury and various difficulties, to being different from other people, lack of self confidence and a strange sadness, isolation and the feeling of taking aimless actions, the feeling of loneliness; but also, though to smaller extent, the feeling of hostility and distance to the partner and joining a subculture, as well as inhibitions in conversations on topics connected with brain injury, caused by offensive labeling, misunderstanding or social stigmatization.
3. Disturbed interactions with the partners, reflected in numerous communication barriers: Patients feel (1) judged (including offending, praising linked to judgment, ordering), (2) deceived, because the partners avoid problematic topics (by changing, criticizing and deciding about certain issues, where the most frequently mentioned communication barrier in the family is "speaking for" the partner-patient, (3) made dependent, as their partners decide for them (by threatening, asking too often about their problems, giving advice or using logical arguments to explain the necessity for behavioral changes that are often unacceptable for the patients, (4) mentally disturbed, because these communication barriers are invading the sphere of their identity, their own "self."

It should be emphasized hat the results of the patients with PTSD are much worse for all the studied parameters than the results of the patients without PTSD, thus supporting the concept of social barriers claimed by microgenetic theory. The improvement obtained through the therapy concerns:

1. the type of the support provided, which was more often positive than negative;
2. partial restoration of family ties, especially cognitive bonds;
3. reduction of some of the communication barriers, e.g. judging, criticizing, offending, and threatening;
4. partial reduction of social isolation, especially concerning the aspect of imposed isolation due to social stigmatization.

Summing up our discussion, it should be emphasized that the "Academy of Life" program, though successful in the elimination of cognitive disorders in TBI patients, was not efficient in reducing communication barriers (Pachalska 2007). It also does not allow for the full restoration of the damaged family ties/bonds between the partners that determine whether or not the TBI patients return to a normal social life. This is probably due to the fact that the communication barriers are connected with the family ties (Pachalska, 2008), making the research problem much more complex. Further clinical research is necessary in order to better understand the complex brain processes responsible for such a destructive state of mind and to develop a more efficient therapeutical program to successfully return these patients to the society. Neurotherapy (Pachalska et al., 2011A) or neuropsychotherapy aimed at the improvement of brain functionalities and the re-establishment of the damaged social bonds that impair the patients' quality of life may prove to be very helpful (Truelle et al., 2010). These actions, whichare crucial for the functioning of the families where one of the members has suffered a brain injury, should be indicators for social and healthcare policies.

CONCLUSIONS

The "Academy of Life" program, though successful in eliminating cognitive process disorders in TBI, is relatively inefficient in reducing communication barriers and social isolation. It also does not allow for the full restoration of the damaged family ties/bonds between the partners that determine whether or not the TBI patient can or will return to a normal social life. Further clinical research is necessary in order to better understand the complex brain processes responsible for such a destructive state of mind, and to develop a more efficient therapeutic program to successfully return these patients to society.

REFERENCES

Braddock, C.H., Fihn, S.D., Levinson, W., Jonsen, A.R. & Pearlman, R.A. (1997). How doctors and patients discuss routine clinical decisions: Informed decision making in the outpatient setting. *Journal of General & Internal Medicine*, *12,* 339-345.

Brown, J.W. & Tomaszewski, W. (2012). Thought and memory. *Acta Neuropsychologica, 10(1)*, 1-12.

Brown, J.W. (2005). *Process and the authentic life: Toward a psychology of value*. Frankfurt & Lancaster: Ontos Verlag.

Damico, J.S., Oelschlaeger, M. & Simmons-Mackie, N. (1999). Qualitative methods in aphasia research: conversation analysis. *Aphasiology, 13,* 667-679.

Duszak, A (1998). *Tekst, dyskurs i komunikacja międzykulturowa.* Warsaw: PWN.

Eaden, J.A., Ward, B., Smith, H. & Mayberry, J.F. (1998). Are we telling patients enough? A pilot study to assess patient information needs in a gastroenterology outpatient department. *European Journal of Gastroenterology & Hepatology, 10*, 63-67.

Kaczmarek, B.L.J. (1994). *Mózg, język, zachowanie.* Wykłady otwarte UMCS. Lublin: TEXT.
Kaczmarek, B.L.J. (2009). *Misterne gry w komunikację*. Lublin: Wydawnictwo UMCS.
Kaczmarek B.L.J. (2012). *Te cudowne krosna umysłu*. Lublin: Wydawnictwo UMCS.
Kee, F. (1996). Patients' prerogatives and perceptions of benefit. *British Medical Journal, 312(7036)*, 958-960.
Kolleck, B., Huber, A., Breitmann, A., Barth, I. & Kirchgassner, R. (1997). Kommunikation mit Patienten. *Pflege, 10*, 335-340.
Lezak, M.D. (1988). Brain damage is a family affair. *Journal of Clinical & Experimental Neuropsychology, 10*, 111-123.
MacQueen, B.D. (2007). Neurolinguistic theory of fluency. *Acta Neuropsychologica*, *5(4)*, 213-227.
Markiewicz, K. & Pachalska, M. (2007). Diagnosis of severe developmental disorders in children under three years of age. *Medical Science Monitor, 13(2)*, 89-99.
Marta, J. (1996). A linguistic model of informed consent. *Journal of Medical Philosophy, 21*, 41-60.
Ong, L.M., de Haes, J.C., Hoos, A.M. & Lammes, F.B. Doctor-patient communication: a review of the literature. *Social Science & Medicine, 40,* 903-918.
Owczarek, K., Bazan, M. & Mirska, N. (2012). Norm-based subjective evaluation of cognitive processes in epileptic patients: a microgenetic approach. *Acta Neuropsychologica, 10(1)*, 81-95.
Pachalska, M. & Lukaszewska, B. (2011). Progressive language and speech disturbances in two different types of dementia. *Acta Neuropsychologica, 9(2)*, 193-208.
Pachalska, M., Lukowicz, M., Kropotov, I.D., Herman-Sucharska, I. & Talar, J. (2011A). Evaluation of differentiated neurotherapy programs for a patient after severe TBI and long term coma using event-related potentials. *Medical Science Monitor, 17(10)*, CS120-128.
Pachalska, M., MacQueen, B.D., Kaczmarek, B.L.J., Wilk-Franczuk, M. & Herman-Sucharska, I. (2011B). A case of "Borrowed Identity Syndrome" after severe traumatic brain injury. *Medical Science Monitor, 17(1)*, CS 18-28.
Pachalska, M., MacQueen, B.D. & Tomaszewski, W. (2010). Europejska Standaryzowana Skala Jakości Zycia po Urazie Mózgu – wersja polska. Podręcznik do badań. Warsaw: Medsportpress.
Pachalska, M. & MacQueen, B.D. (2002). Rozpad pragmatyki u chorych z uszkodzeniem prawej półkuli mózgu. In: A. Herzyk & B. Daniluk (eds.), *Jakościowy opis w neuropsychologii*. *Przekrój zagadnień* (pp. 41-72). Lublin: Wydawnictwo UMCS.
Pachalska, M. (1999). *Afazjologia*. Cracow & Warsaw: Wydawnictwo Naukowe PWN, 1999.
Pachalska, M. (2007). *Neuropsychologia kliniczna: Urazy mózgu*, 2 vols. Warsaw: Wydawnictwo Naukowe PWN.
Pachalska, M. (2008). *Rehabilitacja neuropsychologiczna*. Lublin: Wydawnictwo Naukowe UMCS.
Prigatano, G.P. (1999). Motivation and awareness in cognitive neurorehabilitation. In: D.T. Stuss, G. Winocur & I.H. Robertson (eds.), *Cognitive neurorehabilitation* (pp. 240-251). New York: Cambridge University Press.
Roscigno, C.I. & Van Liew, K. (2008). Pushed to the margins and pushing back: a case study of one adult's reflections on social interactions after a traumatic brain injury sustained as an adolescent. *Journal of Neuroscience Nursing, 40(4)*, 212-221.
Rosenberg, E.E., Lussier, M.T. & Beaudoin, C. (1997). Lessons for clinicians from physician-patient communication literature. *Archives of Family Medicine, 6*, 279-283.
Sacks, H. (1992). *Lectures on Conversation*. Vol I. Oxford: Blackwell.
Simonds, S.K. (1995). Communication theory and the search for effective feedback. *Journal of Human Hypertension, 9*, 5-10.
Truelle, J.L., Koshkinen, S., Hawthorne, G., Sarajuuri, J., Formisano, R., Von Wild, K., Neugebauer, E., Wilson, L., Powell, J., Bullinger, M., Höfer, S., Maas, A., Zitney, G., Von Steinbuechel, N. et al. (2010). Quality of life after traumatic brain-injury: the clinical use of the QOLIBRI, a novel disease-specific instrument. *Brain Injury, 24(11)*,1272-1291.

Address for correspondence:
Grzegorz Mańko
Department of Ergonomics and Exertion Physiology
Institute of Physiotherapy, Faculty of Allied Health Sciences
College of Medicine, Jagiellonian University
ul. Grzegórzecka 20, 31-531 Kraków, Poland
e-mail: neuropsychologia23@o2.pl