



STROKE

useful information

Trieste
Rehabilitation Medicine Department

Introduction.....4
What does it mean to “have a stroke”? What is it? What are the consequences?..... 4

Understanding the stroke: let's start with the brain.....5
Rehabilitation process.....6

Trieste Rehabilitation Medicine Department and its team.....8

Nursing-Assistant Care Management.....10

Sensory-motor disorders.....11
What can be done? Physiotherapy management..... 13

Dysphagia.....14
What can be done? Dysphagia management..... 15

Cognitive disorders.....17
Language..... 18
Apraxia..... 18
Attention..... 19
Neglect..... 19
Executive functions..... 19
Perception and recognition..... 20
Memory..... 20
Social cognition..... 21
What can be done? Speech therapy management..... 21
What can be done? Neuropsychological management..... 23

Affective/emotional and behavioral disorders.....24
What can be done? Psychological management..... 25

Repercussions on daily life activities.....26
What can be done? Occupational Therapist Management..... 27

What is an assistive device?..... 28

Towards discharge from hospital - preparing to return home.....29

Introduction

This booklet aims to provide patients, their family members and/or caregivers with some simple and essential information on the possible consequences resulting from a stroke and on the hospital course, including specific treatments and rehabilitation activities.

What does it mean to “have a stroke”? What is it? What are the consequences?

Stroke is a cerebrovascular disease due to alterations in blood circulation in the brain which manifests itself with a decrease in capacity or function. If changes in the blood supply to the brain are brief, the consequences tend to be mild and easily recoverable; if they are prolonged, there can be significantly more serious repercussions. There are different types of stroke:

- ischemic stroke: it represents approximately 80% of strokes. The main cause is the occlusion of the cerebral arteries due to the formation of an atherosclerotic plaque and/or an embolus coming from the heart or another vascular district.



- hemorrhagic stroke: it is caused by the rupture of a cerebral artery. Typically the cause of this type of stroke is arterial hypertension or an arteriovenous malformation.



- transient ischemic attack (T.I.A.): it differs from the other two types of stroke because the symptoms regress within 24 hours

The resulting disabilities depend on several factors including the area of the brain affected, the severity of the damage, age and general health.

Depending on the affected area of the brain, a stroke can cause the following deficits or disorders:

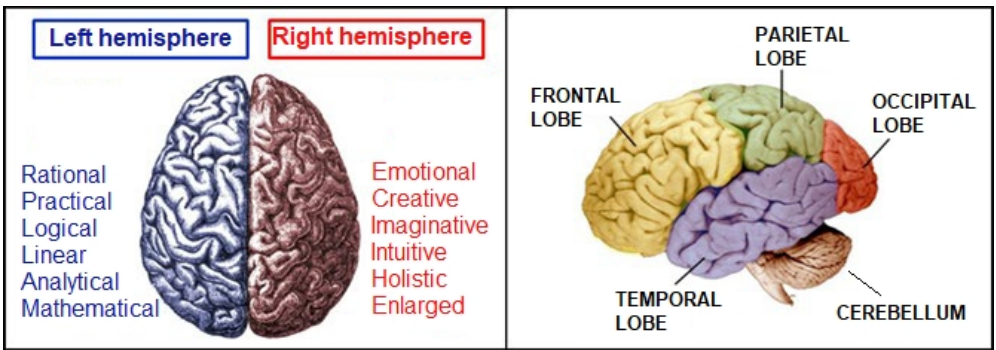
- sensory-motor
- cognition
- sight
- sphincter
- language
- deglutition
- emotional-behavioral sphere

The new condition resulting from the pathology is a source of concern for patients affected by a stroke and their family members who often have to deal with disorders that affect their quality of life.

Understanding the stroke: let's start with the brain

The brain is part of the Central Nervous System and represents the largest and most specialized nervous portion of the encephalon. It is responsible for extremely complex functions, including the processing of stimuli arriving from the sense organs (sight, hearing, taste, touch, smell), language, movement control, learning and reasoning.

The brain is divided into two cerebral hemispheres (right hemisphere and left hemisphere) connected by a robust bundle of nerve fibers, called the corpus callosum. The two hemispheres have important functional differences (e.g. language is an aspect characterizing the left hemisphere) but they are closely connected to each other thanks to a continuous exchange of information through the corpus callosum. Each cerebral hemisphere is also divided into four lobes: the frontal, the temporal, the parietal, the occipital, each of which is responsible for controlling specific functions.



There are also other deeper structures such as the pituitary gland, responsible for neuro-endocrine control, and the hypothalamus which plays a decisive role in emotional control. The cerebellum is located below the cerebrum and posteriorly and is responsible for balance, motor coordination, and it is therefore involved in walking. The brainstem is the lowest portion of the Central Nervous System and connects the brain to the spinal cord and carries out important functions such as maintaining body temperature and blood pressure, heartbeat, eye movements and deglutition.

Rehabilitation process

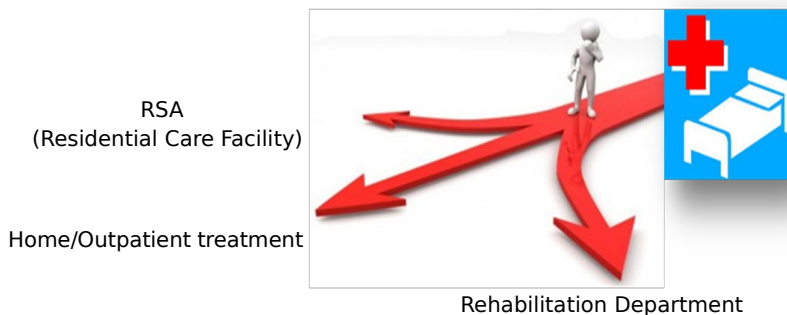
In the weeks following the stroke, there may be some very significant improvements in the affected functions due to spontaneous repair processes. In order to promote the best possible recovery and to minimize functional deficits as well as to prevent complications such as stiffness, joint pain, pressure injuries, due to incorrect positions due to motor deficits or in bedridden patients, it is important to start a specific rehabilitation treatment as soon as possible on the basis of the needs and possibilities of the patient. In close collaboration with the Stroke Unit and the Neurology Department, we have therefore outlined a rehabilitation process that begins already in the acute phase of hospitalization in the Stroke Unit or in the Neurology Department.



As soon as the clinical conditions allow it, the neurologist activates the physiatrist and the patient is taken in charge by the rehabilitation team in order to accelerate and coordinate the motor and cognitive recovery processes.

The physiatrist evaluates motor, sensory and cognitive skills and assesses whether physiotherapy treatment can be started.

Once the patient has overcome the acute phase of the disease and is sufficiently "stable" from a clinical point of view, the need to continue the rehabilitation treatment in another settings assessed.



If the stroke is not particularly serious, the patient can be discharged from hospital and if necessary continue rehabilitation on an outpatient basis (at the Trieste Rehabilitation Medicine Department or at the local healthcare facilities), otherwise s/he can be transferred to the Trieste Rehabilitation Medicine Department or other intensive rehabilitation facilities, or admitted to the Residential Care Facilities (RSA) which provide a lower intensity rehabilitation context. The choice of the most appropriate solution and rehabilitation interventions will be based on a general balance that considers the degree of participation, the disabilities, the comorbidities, the estimate of the recovery potential but also socio-environmental factors and conditions.

Trieste Rehabilitation Medicine Department and its team

The rehabilitation treatment carried out within the Trieste Rehabilitation Medicine Department involves a daily activity of at least three hours which is carried out by rehabilitation technical-health personnel and by nursing-assistant personnel who carry out rehabilitation nursing activities aimed at improving the activities of the daily life (e.g. washing, dressing...).

The frequent coexistence of medical, physical, sensory-motor, cognitive and emotional-behavioral problems in patients affected by a cerebral stroke makes a coordinated and integrated multidisciplinary approach indispensable in which the healthcare personnel collaborate together and coordinate their activities in the interest of patients and their family.

The team includes:

- Psychiatrist doctors
- Nurses
- Care assistants
(Care assistants or OSS)
- Psychologists
- Physiotherapists
- Speech therapists
- Occupational therapists



Upon arrival in the ward, the patient is welcomed by the nurse who collects personal data and all the necessary information (e.g. allergies to medicines or foods, telephone numbers) for the nursing record, through a direct or indirect interview (with the caregiver/family member). At the same time, in order to guarantee your privacy, informed consent authorization is collected for the transmission of clinical data to third parties.

The psychiatrist evaluates the patient and assesses the clinical specificities with the aim of recovering all functions and takes into account the co-presence of other pathologies or conditions that may

influence treatments (e.g. cardio-respiratory pathologies, metabolic decompensation, bacterial or viral infections, etc.), so as to define the degree of need for rehabilitation, to plan the necessary therapeutic interventions and to involve professionals according to the deficits.

In the following days, each professional carries out an assessment of the problems in the specific area of expertise and begins the rehabilitation treatment.

At the end of the assessments, the team members meet to discuss and define a rehabilitation project "tailor-made" for each patient. This project is developed by the team and coordinated by the Psychiatrist and is called the **Individual Rehabilitation Project (PRI)** and establishes the rehabilitation objectives (short, medium and long term) in collaboration with patients and their family, the actions and deadlines necessary to achieve them as well as the involved operators.



The project allows various treatments and rehabilitation interventions to be integrated with each other with the aim of guaranteeing the achievement of the maximum level of autonomy possible compatibly with the damage and impairments that the stroke has caused and taking into account the resources and potential of patients and their family. The PRI is a flexible tool that is checked/updated continuously and possibly redefined, if the clinical, functional and social conditions require it, in order to optimize the effectiveness of rehabilitation interventions. The psychiatrist is responsible for the Individual Rehabilitation Project and coordinates the team of professionals who work for the patient in the various programs, and is therefore the information reference on the diagnosis and rehabilitation prognosis.

After the definition of the PRI, patients and their family are invited to participate in a meeting with the rehabilitation staff; in more complex cases, the local team that will take care of the patient after discharge from hospital also participates in the meeting (psychiatrist, physiotherapist, nurse, GP, social worker as needed).

What are the purposes of the meeting?



- inform about health conditions and answer any questions or concerns
- provide a rehabilitation prognosis upon admission
- introduce the professionals who work with the patient,
- share the rehabilitation program and communicate any progress achieved
- know the person's relational, family, social and economic resources (e.g. living, social context, work situation) before discharge from hospital
- help patients and their family to prepare/organize in advance the return home after discharge from hospital or possibly to plan placement in other facilities when it is not possible to return home.

Nursing-Assistant Care Management

The rehabilitation nurse monitors the maintenance of the patient's clinical stability over time by measuring vital parameters (e.g. saturation, body temperature, blood pressure, heart rate) as well as investigates in collaboration with other professionals the degree of residual autonomy, the presence of pain and its level of expression, the effectiveness of communication, the cognitive/verbal/motor response, space-time orientation.

The nurse observes and evaluates the main physiological functions (swallowing ability with administration and execution of the water bolus test, nutrition, intestinal and bladder activity).

Bladder function is assessed through the use of a portable ultrasound (bladder scanner), according to a non-invasive and painless procedure that checks the ability to empty the bladder, thus preventing the onset of acute urinary retention and related problems (e.g. urinary tract infections, etc.).

The patient is also assisted daily by the care assistants of the department (OSS) who carry out hygiene, train the patient in personal care, help him/her in choosing the menu and taking meals.

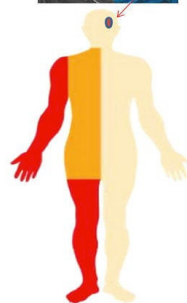


All patients with stable clinical conditions are positioned daily in a wheelchair by care assistants together with nurses and physiotherapists.

Sensory-motor disorders

When the stroke involves the right hemisphere of the brain, the left side of the body will be affected, vice versa if it affects the left hemisphere it will involve the right side of the body.

We speak of **plegia** or **hemiplegia** when the voluntary movements of the affected side have been completely compromised; in the event that the disorder is less serious and involves a partial deficit or reduction in voluntary motor activity, it is called **paresis** or **hemiparesis**. It follows that a right brain stroke will lead to left hemiparesis (or hemiplegia) and vice versa.



The motor disorder can manifest itself on the affected side on the face (lowering of the oral rhyme, "crooked" mouth), arm and/or leg, thus making it difficult or even impossible to speak, move, walk and generally carry out normal daily activities.

Movement disorder may be associated with:

- **Flaccidity**: complete loss of muscle tone (drooping limb)
- **Spasticity**: abnormal and excessive increase in muscle tone, even at rest, which manifests itself with rigidity of some muscle groups, with the possible appearance of painful spasms, contractures, uncontrolled and involuntary movements.
- **Associated reactions/irradiation**: increase in muscle tone at the level of the affected upper limb during the execution of a movement, even if not directly involved during the action (for example when the patient yawns, coughs, sneezes or makes a change of position, an uncontrolled involuntary movement of the affected upper limb may be observed)
- **Dysmetria**: deficit in movement control, inability to coordinate, to direct, to reach a body target or a target in the surrounding space (for example, a poorly fluid, imprecise, uncoordinated movement of the affected limb can be observed during the attempt to reach a body part or object)
- **Postural disorders**: due to the total or partial loss of perception of the body schema, they lead to misalignment and imbalance. The patient may appear sprawled out in the bed and have difficulty maintaining the sitting position correctly.

Alongside motor problems, more or less marked alterations in sensitivity can be found. We talk about:

hypoesthesia when there is a partial reduction of sensitivity in its various forms (thermal, tactile, pain) and **anesthesia** when the loss of sensitivity is total. These alterations can cause difficulty in discriminating the point of the body where it is touched, in recognizing the position of the arm or leg in space (deficit in kinesthetic and proprioceptive sensitivity) or they can lead to disturbances in subjective sensitivity (e.g. tingling sensations).

What can be done? Physiotherapy management

The physiotherapist identifies the sensory-motor problems and takes into account any neurocognitive disorders through an in-depth assessment.

S/he plans the rehabilitation intervention by formulating the objectives to be achieved in the short, medium and long term, by identifying the most appropriate intervention strategies for the patient and by reformulating the objectives and modifying the treatment choices, on the basis of the motor skills gradually achieved. The formulated rehabilitation program is shared with patients and their family members/caregivers.

Exercise is the tool used by the physiotherapist to implement, promote and influence the recovery process, offer correct information and adequate stimuli, obtain changes through knowledge and the acquisition of significant information.



Objectives:

- awareness of the difficulties resulting from the stroke
- improvement of visual-spatial exploration and gaze fixation
- improvement of body perception (recovery of sensitivity and postural re-alignment)
- improvement of the functionality of the limbs (recovery of movements and motor control) and trunk functions
- motor strategies in postural variation
- recovery and maintenance of the sitting position
- autonomy when transferring bed/armchair/wheelchair/toilet
- recovery of standing position and walking with/without aid
- going up and down stairs



Dysphagia

Dysphagia is difficulty swallowing solid foods and liquids. It is quite common in people with stroke and includes all the problems that arise in the passage of food from the mouth to the stomach. Dysphagia can manifest itself through one (or more) of the following signs:

- coughing;
- wet, gurgling voice;
- need to clear your throat;
- change of color in the face;
- tearing;
- loss of saliva or food from the mouth;
- tendency to hold food in the mouth;
- presence of food residues in the mouth;
- part of the food coming out of the nose;
- sneezing during a meal;
- frequent low temperatures without other obvious causes;
- weight loss and weakness.



Dysphagia can lead to some pretty serious complications, such as malnutrition, dehydration, and pneumonia. Hence the need to quickly identify the dysphagic patient and intervene to guarantee a safe diet.

What can be done? Dysphagia management

The patient with swallowing problems is identified through a screening procedure carried out by the nursing staff. The dysphagic person is then reported to the speech therapist who will carry out an in-depth and complete swallowing assessment within 24/48 hours. The objectives of the evaluation are as follows:

- establish the possibility of oral feeding
- define the severity of dysphagia
- if necessary, change the consistencies of the foods that the patient can eat (below an explanatory table of the possible recommended consistencies)
- plan a rehabilitation program
- suggest any further diagnostic investigations
- provide information and advice to family members regarding meal management

If necessary, the speech therapist sets up a rehabilitation program aimed at recovering swallowing functionality as much as possible and suggests useful behaviors to be adopted during the meal, capable of promoting safe eating.

LIQUIDS	<p>Examples: water, tea.</p> <p>Liquids are generally difficult to swallow in a controlled manner because they flow quickly. You can intervene by providing cold and/or sparkling drinks that increase oral perception and stimulate the trigger for swallowing. If necessary, drinks are thickened with the use of thickeners.</p>
SEMILIQUIDS	<p>DENSE/SYRUPY</p> <p>Consistency of yogurt, syrup, honey, jam and vegetable cream.</p>
SEMISOLIDS	<p>VERY DENSE/ CREAMY</p> <p>Consistency of watergel, pudding, puree, blended meat, blended vegetables (homogeneous blended diet)</p>
SOLIDS	<p>SOFT</p> <p>Easy-to-chew foods, preferably cohesive: consistency of chopped banana, small overcooked pasta (such as tempestina), boiled cod, stracchino and crushed meatballs</p> <p>FREE WITH RESTRICTIONS</p> <p>Including all solid foods: consistency of pasta, meat, biscuits, bread, excluding foods with a double consistency, stringy vegetables, legumes with peel, dried fruit, raw ham.</p> <p>LIBERA SENZA RESTRIZIONI</p>
DOUBLE CONSISTENCY	<p>These are all foods composed of SOLID/LIQUID. These are the most difficult to manage in the presence of dysphagia, as they require different swallowing mechanisms.</p> <p>Examples: broth with pasta, vegetable minestrone with pieces, juices with residues, milk with biscuits, kiwi, strawberries, citrus fruits</p>

Cognitive disorders

The presence of cognitive disorders is quite common and there are various cognitive functions that can be affected by a brain stroke.

LANGUAGE	Faculty that allows us to convey and exchange information through verbal communication
PRAXIS	Plan and execute targeted, intentional movements to perform a gesture (e.g. greeting) or an action (e.g. use of objects)
ATTENTION	SUSTAINED or prolonged over time SELECTIVE : ability to select one or more sources of stimulation in the presence of competing information DIVIDED : ability to intentionally distribute attention among various tasks
VISUAL-SPATIAL SKILLS	They allow us to identify the spatial relationships between the individual and the surrounding objects and perceive the orientation of the visual stimuli we encounter
EXECUTIVE FUNCTIONS	Planning : programming of behavior to achieve specific goals or to facilitate adaptation to new situations Cognitive flexibility : the ability to change thinking or behavioral strategies to cope with circumstances Inhibition and self-control : the ability to inhibit automatic responses that are not appropriate to the situation, modulate one's behavior and/or emotional reactions Shifting : the ability to move attention from one task to another or within the same task
PERCEPTION	VISUAL PERCEPTION : it allows the processing of information coming from the outside world through the eyes in order to interpret and understand it AUDITIVE PERCEPTION : it allows the processing of sound information in order to interpret and understand it
MEMORY	VISUAL AND VERBAL MEMORY SHORT-TERM MEMORY : it allows you to keep information in mind for a short period of time WORKING MEMORY : it allows you to keep information in mind for the time necessary to perform a given task (e.g. mental calculation) EPISODIC MEMORY : it allows you to remember an event and where/when the event took place SEMANTIC MEMORY : it represents general knowledge (e.g. on the meaning of words, symbols and their relationships) PROSPECTIVE MEMORY : ability to remember to carry out a previously programmed action
SOCIAL COGNITION	RECOGNITION OF EMOTIONS THEORY OF MIND : ability to understand and take into account the thoughts, desires, intentions and emotions of another person in a specific situation in order to interpret and/or predict their behavior

As with any other function involved, cognitive alterations will depend on the area or brain region affected and the extent of the area involved.

Language

Language and communication disorders (or aphasias) include difficulties in verbal comprehension and/or production and may also include impairment of reading, writing and calculation skills. Aphasias are caused by lesions that usually affect the left half of the brain where the language areas are located. Based on the characteristics of speech, aphasias can be grouped into:

- fluent aphasia characterized by speech that is generally abundant but in most cases devoid of informative content and with often poor understanding associated with a lack or reduced awareness of linguistic problems;
- non-fluent aphasias in which speech is reduced and also limited by difficulty in articulating oral language, with relatively preserved understanding; usually the person is aware of their difficulties and this can lead to a significant state of frustration.

The level of severity varies from person to person: it can range from a complete loss of speech to occasional difficulty finding the right word or using words correctly; Comprehension problems can range from an occasional misunderstanding of speech to a complete inability to understand all of the words spoken by others.

Apraxia

Disturbances in praxis (also called apraxia) manifest themselves during the execution of an intentional movement or a movement aimed at carrying out an action or gesture. They can present themselves as an inability to voluntarily perform (on request or imitation) daily gestures while the same actions can be correctly performed automatically, that is, when there is no conscious intention to do so. For example, the person may no longer be able to say "bye bye" on request, but can make the same greeting gesture when s/he says

goodbye to a friend. S/he may also have difficulty using familiar objects, such as a comb, toothbrush or cutlery.

Attention

A feeling of mental slowdown is very common after a stroke as well as having difficulty concentrating and not being able to follow the thread of a speech or a film on television. In other cases the person may become easily distracted or unable to pay attention to two simultaneous activities, such as driving the car and conversing with the person sitting next to him/her.

Neglect

Neglect (or Eminattention or Unilateral spatial hemineglect) is an attention disorder that occurs mainly in people who have had a brain stroke in the right hemisphere and who present paresis or paralysis of the left side of the body. Neglect significantly compromises the ability to carry out a wide range of daily activities and can therefore be highly disabling. Those affected by it, for example, are unable to pay attention to everything that is in the left half of the space, and may therefore have difficulty orienting themselves in environments or finding objects in the house because everything that is to their left from time to time will be ignored (e.g. they may bump into doors or not consider any obstacles on the left side, not eat the food that is on the left side of the plate or even they will not be able to read a newspaper or a book because they will ignore a part of it). Often neglect leads to not even considering the left half of one's body, leading the person to ignore their left arm, forget to shave half their face or have difficulty getting dressed, putting on their glasses, etc.

Executive functions

Alterations in executive functions are recurrent consequences after a stroke and can cause a wide range of problems such as: difficulty making decisions and establishing objectives to be achieved and/or defining the steps and actions necessary to achieve a goal by evaluating also the options available.

They can also hinder the ability to analyze and understand the causes of a possible failure, leading to planning errors and a tendency to persevere with incorrect strategies instead of adapting and modifying one's behavior to the task or circumstances in which one finds oneself. Closely linked to attention are also the capacity for inhibition which, if altered, can lead to difficulty in focusing on a task or activity without other thoughts or external stimuli interfering, and the attentional flexibility which, if disturbed, hinders the ability to switch quickly from one task to another.

Perception and recognition

Perception or recognition disorders can concern the visual, auditory or tactile modality. In the visual modality they can manifest themselves in the inability to see half of the objects (hemianopsia), to perceive their movement, the distance at which they are located, to distinguish their color (chromatopsia). They sometimes cause an inability to recognize objects or people despite seeing them (agnosia), so for example the person may mistake a spoon for a fork or a light bulb for a pear, or no longer be able to recognize their spouse by sight but only when the latter speaks.

Memory

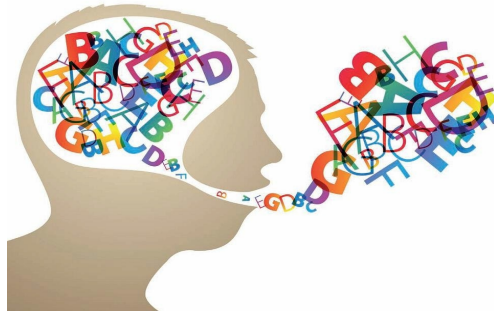
Memory disorders can manifest themselves as an inability to learn new information or remember past events, forget appointments or activities planned in the future or even no longer remember how to perform a task (for example, the person has difficulty remembering how to drive the car). Other times it is difficult to keep present and active in memory a series of information that allows you to solve a calculation or the steps necessary to organize a complex activity.

Social cognition

Disorders of social cognition can manifest as changes in behavior or attitude, and are often described as a change in personality (e.g. engaging in socially inappropriate behavior, being insensitive to social norms, being less able to read social signals or facial expressions, less empathetic, or even show abulia, apathy, disinhibition, impulsiveness, short temper and low frustration tolerance).

What can be done? Speech therapy management

The rehabilitation of language and communication problems is the responsibility of the speech therapist.



Taking care of a patient with aphasia must be early and requires some essential prerequisites, namely adequate levels of concentration, collaboration, motivation and sustained attention.

In the sub-acute phase (i.e. approximately 4-5 days after neurological damage), the speech therapist generally carries out the first assessment at the patient's bedside with the aim of detecting the severity of the aphasia and the most compromised language components.

A more complete and structured evaluation can be proposed subsequently by a neuropsychologist and speech therapist in the early post-acute phase, within 30 days after hospitalization, with the aim of identifying the type of aphasia, the degree of linguistic and communicative impairment, and consequently setting the most appropriate treatment.

Speech therapy rehabilitation is carried out daily on an inpatient basis, while it takes place at different intervals (1-2 times a week) at the clinic or at home after discharge from hospital. The objectives are defined in the short, medium and long term, in general however the main aim of the speech therapy treatment is to enhance the patient's communicative effectiveness by exploiting all possible channels (verbal and extraverbal, i.e. facial expressions, gestures, use of images) and training the caregivers.

What can be done? Neuropsychological management

The neuropsychological evaluation, diagnosis and rehabilitation activity aims at maximum recovery of cognitive-behavioural disabilities and is entrusted to the psychologist/neuropsychologist. To detect any deficient areas in the cognitive-behavioral profile, monitor their temporal evolution and, if necessary, plan and design targeted rehabilitation interventions, the (neuro)psychologist makes use of the Neuropsychological Examination which uses standardized tools (tests, scales, questionnaires) and allows the identification of cognitive and/or emotional-motivational deficits in addition to the cognitive resources spared by the stroke.



Neuropsychological management begins already in the sub-acute phase during hospitalization, following a recommendation from the neurologist or psychiatrist, with the aim of early identifying the presence of cognitive disorders that may influence the recovery of autonomy. Compatibly with the patient's clinical situation, a short neuropsychological screening capable of providing an indication of global cognitive functioning is proposed (generally at the hospital bed). The in-depth evaluation of the cognitive and behavioral profile instead takes place in a phase of greater stabilization, within 7-10 days of arrival at the Rehabilitation Department so as to share the results with the team at the first meeting for the definition of the Individual Rehabilitation Project (PRI). This involves the selection and administration of an extensive set of tests, the choice of which will depend on various factors (such as the person's cognitive and attentional resources, the location of the stroke, the time since its onset).

In accordance with the symptomatic profile that has emerged, its severity, the evolutionary phase of the patient and the objectives that can realistically be pursued, a rehabilitation program is created aimed at strengthening those areas found to be deficient by optimizing their residual potential or promoting functional compensation through use of spared skills.

Neuropsychological training includes exercises, including computerized ones, with gradual levels of difficulty and the teaching of operational strategies and/or tools for compensating the alterations present to better deal with everyday life situations. The rehabilitation proposals are shared with the patient and family members and updated periodically based on the goals achieved and emerging needs.

An integral part of the rehabilitation process are the psycho-educational and psychological support interventions aimed at the patient and family members aimed at promoting the recognition of the cognitive-emotional-behavioral problems and their impact on daily autonomy, their processing and motivation for change, while increasing the sense of effectiveness in managing the new situation.

Affective/emotional and behavioral disorders

Depression is common after a stroke and is present in about a third of cases. It manifests itself with symptoms such as sadness, melancholy, loss of interest and pleasure in things frequently associated with feelings of uselessness and experiences of inadequacy. There may also be fatigue, loss of appetite, sleep disturbances and general malaise. In many cases, depression is an expression of the emotional/psychological difficulty of adapting to the sudden reduction or loss of autonomy, while other times it is due to biological alterations caused by the stroke (in this case we speak of predominantly organic depression).

After a stroke, in addition to depression, a series of emotional and behavioral changes can occur which in most cases are mild and transitory, while other times they can be more evident depending on the location and extent of the lesion. These changes include excessive anxiety, agitation, behavioral disinhibition, a seemingly grumpy and inflexible manner but also apathy.

In some cases it is possible that the person shows an almost detached and careless attitude, poor awareness of the disorders caused by the stroke or excessive emotional sensitivity (s/he becomes emotional, angry, agitated by apparently neutral stimuli). These reactions can disorientate family members as they are attributed to intentional behavior, but are often secondary to the disease and tend to regress after the acute phase.

Depression and the emotional-behavioral changes described so far are expressed differently from person to person depending on the characteristics of the stroke and many other factors such as age, personality, previous history of psychological disorders, etc...



What can be done? Psychological management

From the early stages of hospitalization in the Rehabilitation Department it is possible to involve the clinical psychologist upon recommendation from the team or upon direct request from the patient. The psychologist can help the person to soothe the sense of confusion that characterizes the first weeks after the stroke, to become aware of the change that has occurred but also to activate the internal resources necessary to engage in rehabilitation. Usually the person draws strength, motivation and determination to recover from the rehabilitative progress that s/he sees achieved day by day, however when the efforts put into play do not lead to the desired results, moments of uncertainty, discouragement and fears for the future may arise.



The involvement of the psychologist can help to:

- identify psychological risk factors or signs of distress as soon as possible in order to prepare the most suitable intervention for the patient and the specific situation (in some cases taking medications may help).
- clarify the predominantly reactive or organic nature of any affective/emotional and behavioral disorders
- psychologically support the patient during hospitalization (hospitalization itself can represent a stressor) encouraging participation in rehabilitation treatments.
- stimulate the patient's resources in order to help him/her face the change. In fact, disability is not in itself an illness but requires a gradual process of psychological adaptation so that the person can reconsider in the future and live with their limitations without an excessive impact on the quality of life.

Psychological support is mainly dedicated to hospitalized people affected by stroke, however the discussions can also be extended to family members if they feel the need to be of more help to their loved one.

Repercussions on daily life activities

The person affected by a stroke may no longer be able to independently carry out simple basic activities that they previously performed in everyday life such as washing, dressing, using the toilet and eating (ADL), or more complex activities such as writing, using the telephone or computer, cooking, etc. (IADL).



The execution of these activities requires the coordination of many skills including sensitivity and motor ability, planning ability, motivation and commitment to completing a task until its conclusion. These functions can be altered in different ways after the stroke with different repercussions on the ability to carry out certain activities.

For example, a person with paralysis of the right limbs may not be able to dress on his/her own, while a person with balance disorders may have difficulty moving around independently (as they are prone to falls) and therefore requiring constant assistance and supervision.



What can be done? Occupational Therapist Management

The occupational therapist has a privileged tool, that is the activities of daily life (such as eating/drinking, dressing or washing) or of interest to the patient (e.g. manual, recreational and expressive activities) and integrates them with knowledge and rehabilitation techniques, and has the objective to recover these activities or carry them out with the greatest possible degree of autonomy.

Starting from the first days of hospitalization in the Rehabilitation Department, the occupational therapist makes contact with the person affected by a stroke in order to stimulate and help them carry out simple activities such as nutrition or personal hygiene and encourages to carry them out safely. These moments also become an opportunity to evaluate and better understand the difficulties and represent the basis for planning a rehabilitation program shared with the patient.

In order to personalize the intervention, the occupational therapist evaluates not only the problems secondary to the stroke but also the person's resources by considering multiple factors (e.g. motivations, expectations, lifestyle, type of work occupation, interests, housing and social conditions, etc. ...).

The main aim of the treatment is to promote the resumption of normal activities of daily living (ADL or IADL) with as much autonomy and safety as possible:

- recovering both motor and procedural skills
- teaching new strategies
- promoting environmental changes
- proposing the possible adoption of orthoses and aids and training in their correct use

In many cases the person, over time, begins to carry out some activities independently again thanks to the use of the strategies and suggestions provided during occupational therapy.

In this process, family members play a central role since during hospitalization they can encourage their loved one to do what s/he is capable of doing. In fact, often the emotional difficulty in accepting the disability of an emotionally close person leads to underestimating the problems or overestimating them with the risk of making replace oneself in the execution of actions that the person is capable of carrying out.

When total autonomy cannot be achieved, supporting, helping and educating the person who will take care of the patient becomes even more important. Teaching how to use aids, providing suggestions and strategies can in fact help reduce the commitment linked to home care.

What is an assistive device?

Assistive devices are all those products, tools, equipment or technological systems that can prevent, compensate, alleviate or eliminate an impairment or disability, such as a walker, wheelchair, lift, toilet seat); while orthoses are corrective devices such as a knee brace, orthopedic insoles, etc.



Towards discharge from hospital - preparing to return home



The results of the stroke compromise the possibility of an independent life, the end of hospitalization is also experienced with apprehension as it represents the exit from an environment experienced as protective and safe, responsive to the needs of a person with disabilities. The prevailing concerns usually concern the home management of the problems caused by the stroke and any resulting assistance needs.

For this reason, the direct involvement of family members is central and involves various initiatives and information/training moments that allow them to be prepared for discharge from hospital, thus mitigating concerns for the period following hospitalization.

For these reasons, the pathway provides on the basis of the needs:

- meetings with the professionals of the rehabilitation team to clarify doubts and receive information on how to provide effective help to your relative, promoting a safe return home
- "training" sessions in which family members or other people who will provide assistance at home (e.g. caregivers) are educated on managing residual problems
- "protected outings" together with the occupational therapist for the purpose of verifying the patient's execution and management of simple and complex activities of daily life (ADL and IADL) at home and in his/her usual living environment
- "home inspection" by operators of the rehabilitation team (usually the occupational therapist) to ensure that there are suitable conditions for returning home (e.g. absence of architectural barriers) and to propose any environmental changes that facilitate access and movements within your home.

- Upon discharge from hospital, when necessary, the psychiatrist will send electronically the certificate for the recognition of civil disability necessary for the supply of any assistive devices/orthoses and to be able to access any financial contributions
 - ◆ prescription/supply of the necessary assistive devices/orthoses/devices
 - ◆ activation of Home Artificial Nutrition/Parenteral or Enteral Nutrition in case of severe dysphagia
 - ◆ transportation planning for discharge from hospital
 - ◆ planning of any follow-ups



There are **four types of discharge from hospital**:

1. **ORDINARY DISCHARGE FROM HOSPITAL** for patients who have no further rehabilitation objectives and who do not require activation of the local healthcare service, for them it is sufficient to prepare the discharge letter to the General Practitioner and plan a follow-up
2. **DISCHARGE FROM HOSPITAL WITH UVD ACTIVATION OR REPORT TO THE LOCAL SERVICE ACCORDING TO THE PROTECTED DISCHARGE PROTOCOL** for complex patients who need to be taken care of by the local healthcare service, for them it is necessary to send a report, hold a pre-discharge

sharing meeting and provide clinical and healthcare information and rehabilitation also through scales and continuity sheets

3. **DISCHARGE FROM HOSPITAL WITH REHABILITATION DAY HOSPITAL** for patients who require multidisciplinary/multiprofessional treatment that can be implemented in a Day Hospital regime
4. **DISCHARGE FROM HOSPITAL WITH OUTPATIENT REHABILITATION TREATMENT PROGRAM** for transportable patients who require outpatient rehabilitation programs

Upon discharge from hospital, in addition to the discharge letter complete with all the necessary information and the records of the professionals who worked with the patient, the first cycle of pharmacological therapy is provided as well as any medical certificate.



DISCLAIMER

This booklet contains information valid at the time of printing and is periodically updated. However, changes in operations may occur between one edition and another.

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