Gruppo di ricerca geriatrica

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LA COMPLESSITA' IN GERIATRIA

LA COMPLESSITA' DELL'ESAME OBIETTIVO

Angelo Bianchetti

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Corso per medici, infermieri e psicologi

LA COMPLESSITÀ IN GERIATRIA

Corso accreditato al Programma Regionale Lombardo di Educazione Continua
Aula Formazione Gruppo di Ricerca Geriatrica, Via Romanino 1, Brescia

15 Crediti ECM CPD per medici, infermieri e psicologi

PROGRAMMA

Gennaio 2011

14 gennaio	La medicina della complessità: appunti per una teoria	*Marco Trabucchi*
21 gennaio	La complessità dell'anamnesi	*Renzo Rozzini*
28 gennaio	La complessità dell'esame obiettivo	*Angelo Bianchetti*

Febbraio 2011

4 febbraio	La complessità delle terapie	*Simone Franzoni*
11 febbraio	La complessità della riabilitazione	*Giuseppe Bellelli*
18 febbraio	La complessità dell'organizzazione sanitaria	*Enrico Zampedri*
25 febbraio	La letteratura scientifica tra supporti cartacei ed elettronici	*Luca Rozzini*

Marzo 2011

4 marzo	La complessità di un reparto di geriatria	*Renzo Rozzini*
11 marzo	La complessità delle RSA	*Michele Zani*
18 marzo	La complessità dell'assistenza domiciliare	*Fausta Podavitte*
25 marzo	La complessità in cardiogeriatria	*Cristina Cornali*

Aprile 2011

1 aprile	La complessità delle malattie metaboliche	*Intissar Sleiman*
8 aprile	AIP	
15 aprile	La complessità in psicogeriatria	*Angelo Bianchetti*
22 aprile	Dov'è il limite del medico di fronte al dolore	*Marco Trabucchi*
29 aprile	La complessità e la comunicazione con il paziente	*Sara Morghen*

Complesso?

C**omplessità** come termine contrapposto al concetto di **semplicità**?

COMPLESSO

- Difficile
- Complicato
- difficoltoso
- Oscuro
- Spinoso
- Contorto
- Intricato
- Macchinoso
- Tortuoso
- astruso

SEMPLICE

- Facile
- Elementare
- Lineare
- Piano
- Agevole
- Chiaro
- Comprensibile
- Evidente
- Ovvio
- Banale
- Manifesto
- palese

Complesso?

- Il principale uso scientifico del termine è come sinonimo di **teoria della complessità**
- Si parla di **complessità o teoria della complessità** pensando alla *teoria del caos*, al *comportamento emergente* di molti sistemi, alla *complessità delle reti*, al comportamento che i *sistemi* esibiscono quando sono lontani *dall'equilibrio termodinamico* e alle f*acoltà di auto-organizzazione* che a volte ne derivano.

- Il **comportamento emergente** è la situazione nella quale un sistema esibisce proprietà inspiegabili sulla base delle leggi che governano le sue componenti. Esso scaturisce da interazioni non-lineari tra le componenti stesse
- **l'auto-organizzazione** è principalmente una forma di sviluppo del sistema attraverso influenze ordinanti e limitative provenienti dagli stessi elementi che costituiscono il sistema oggetto di studio e che permettono di raggiungere un maggior livello di complessità.

Teoria del caos

- Un sistema dinamico si dice **caotico** se presenta le seguenti caratteristiche:
  - *Sensibilità alle condizioni iniziali*, ovvero a variazioni infinitesime delle condizioni al contorno (o, genericamente, degli **ingressi**) corrispondono variazioni finite in uscita.
  - *Imprevedibilità*, cioè non si può prevedere in anticipo l'andamento del sistema su tempi lunghi rapportati al tempo caratteristico del sistema a partire da assegnate condizioni al contorno.
  - L' *evoluzione* del sistema è descritta, nello spazio delle fasi, da innumerevoli *orbite* ('traiettorie di stato'), diverse tra loro con evidente componente stocastica agli occhi di un osservatore esterno, e che restano tutte confinate entro un certo spazio definito: il sistema cioè non evolve verso l'infinito per nessuna variabile; si parla in questo caso di ' *attrattori* ' o anche di ' *caos-deterministico* '.

- Siamo sicuri che l’uso diffuso del termine COMPLESSO sia adeguato a descrivere i fenomeni clinici che si riferiscono ai soggetti anziani?
- Se si, siamo davvero in grado di spiegarne le dinamiche?
- Cosa cambia questo nella nostra prassi clinica applicando le “regole” della complessità?

MERCK

Evaluation of the Elderly Patient

- **Evaluation of the elderly usually differs from a standard medical evaluation. For elderly patients, especially those who are very old or frail, history-taking and physical examination may have to be done at different times, and physical examination may require 2 sessions because patients become fatigued.**
- **Thus, some elderly patients, particularly the frail or chronically ill, are best evaluated using a comprehensive geriatric assessment, which includes evaluation of function and quality of life, often by an interdisciplinary team**

ESAME OBIETTIVO

TRADIZIONALE

- Anamnesi familiare
- Anamnesi fisiologica
- Anamnesi patologica remota e prossima
- Esame obiettivo
- Diagnosi

ANZIANO

- Anamnesi familiare?
- Anamnesi sociale
- Anamnesi fisiologica?
- APR e APP
- Anamnesi farmacologica
- Valutazione funzionale
- Funzioni cognitive e affettive
- Esame obiettivo
- Prognosi
- Problemi attivi/diagnosi

Physical Examination

- **Observing patients and their movements (eg, walking into the examination room, sitting in or rising from a chair, getting on and off an examination table, taking off or putting on socks and shoes) can provide valuable information about their function. Their personal hygiene (eg, state of dress, cleanliness, smell) may provide information about mental status and ability to care for self.**
- **If patients become fatigued, the physical examination may need to be stopped and continued at another visit. Elderly patients may require additional time to undress and transfer to the examining table; they should not be rushed. The examining table should be adjusted to a height that patients can easily access; a footstool facilitates mounting. Frail patients must not be left alone on the table. Portions of the examination may be more comfortable if patients sit in a chair.**
- **Clinicians should describe the general appearance of patients (eg, comfortable, restless, malnourished, inattentive, pale, dyspneic, cyanotic). If they are examined at bedside, use of protective padding or a protective mattress, bedside rails (partial or full), restraints, a urinary catheter, or an adult diaper should be noted.**

- L’approccio “olistico” (il tutto da maggiori informazioni della somma delle singole parti) risponde alla “legge della complessità”?
- *Un **comportamento emergente** o **proprietà emergente** può comparire quando un numero di entità semplici (agenti) operano in un ambiente, dando origine a comportamenti più complessi in quanto collettività*.

Vital sign

- Weight should be recorded at each visit. During measurement, patients with balance problems may need to grasp grab bars placed near or on the scale. Height is recorded annually to check for height loss due to osteoporosis.
- Temperature is recorded. Hypothermia can be missed if the thermometer cannot measure temperatures more than a few degrees lower than normal. Absence of fever does not exclude infection.
- Pulses and BP are checked in both arms. Pulse is taken for 30 sec, and any irregularity is noted. Because many factors can alter BP, BP is measured several times after patients have rested > 5 min.
- BP may be overestimated in elderly patients because their arteries are stiff. This condition, called pseudohypertension, should be suspected if dizziness develops after antihypertensives are begun or doses are increased to treat elevated systolic BP.
- All elderly patients are checked for orthostatic hypotension because it is common. BP is measured with patients in the supine position, then after they have been standing for 3 to 5 min. If systolic BP falls ≥ 20 mm Hg after patients stand, orthostatic hypotension is diagnosed.
- A normal respiratory rate in elderly patients may be as high as 25 breaths/min. A rate of > 25 breaths/min may be the first sign of a lower respiratory tract infection, heart failure, or another disorder.

Skin

- Initial observation includes color (normal rubor, pale, cyanotic). Examination includes a search for premalignant and malignant lesions, tissue ischemia, and pressure ulcers. In the elderly, the following should be considered:
  - Ecchymoses may occur readily when skin is traumatized, often on the forearm, because the dermis thins with age.
  - Uneven tanning may be normal because melanocytes are progressively lost with aging.
  - Longitudinal ridges on the nails and absence of the crescent-shaped lunula are normal age-related findings.
  - Nail plate fractures may occur because with aging, the nail plate thins.
  - Black splinter hemorrhages in the middle or distal 1/3 of the fingernail are more likely to be due to trauma than to bacteremia.
  - A thickened, yellow toenail indicates onychomycosis, a fungal infection.
  - Toenail borders that curve in and down indicate ingrown toenail (onychocryptosis).
  - Whitish nails that scale easily, sometimes with a pitted surface, indicate psoriasis.
  - Unexplained bruises may indicate abuse.

Head and Neck

- Face: Normal age-related findings may include the following:
  - Eyebrows that drop below the superior orbital rim
  - Descent of the chin
  - Loss of the angle between the submandibular line and neck
  - Wrinkles
  - Dry skin
  - Thick terminal hairs on the ears, nose, upper lip, and chin
  - The temporal arteries should be palpated for tenderness and thickening, which may indicate giant cell arteritis.
- Nose: Progressive descent of the nasal tip is a normal age-related finding. It may cause the upper and lower lateral cartilage to separate, enlarging and lengthening the nose.
- Eyes: Normal age-related findings include the following:
  - Loss of orbital fat: It may cause gradual sinking of the eye backward into the orbit (enophthalmos). Thus, enophthalmos is not necessarily a sign of dehydration in the elderly. Enophthalmos is accompanied by deepening of the upper eyelid fold and slight obstruction of peripheral vision.
  - Pseudoptosis (decreased size of the palpebral aperture)
  - Entropion (inversion of lower eyelid margins)
  - Ectropion (eversion of lower eyelid margins)
  - Arcus senilis (a white ring at the limbus)

- Ears: Tophi, a normal age-related finding, may be noted during inspection of the pinna. The external auditory canal is examined for cerumen, especially if a hearing problem is noted during the interview. If a patient wears a hearing aid, it is removed and examined. The ear mold and plastic tubing can become plugged with wax, or the battery may be dead, indicated by absence of a whistle (feedback) when the volume of the hearing aid is turned up.
  - To evaluate hearing, examiners, with their face out of the patient's view, whisper 3 to 6 random words or letters into each of the patient's ears. If a patient correctly repeats at least half of these words for each ear, hearing is considered functional for one-on-one conversations. Patients with presbycusis (age-related, gradual, bilateral, symmetric, and predominantly high-frequency hearing deficits) are more likely to report difficulty in understanding speech than in hearing sounds. Evaluation with a portable audioscope, if available, is also recommended.
- Mouth: The mouth is examined for bleeding or swollen gums, loose or broken teeth, fungal infections, and signs of cancer (eg, leukoplakia, erythroplakia, ulceration, mass). Findings may include
  - Darkened teeth: Due to extrinsic stains and less translucent enamel, which occur with aging
  - Fissures in the mouth and tongue and a tongue that sticks to the buccal mucosa: Due to xerostomia
  - Erythematous, edematous gingiva that bleeds easily: Usually indicating a gingival or periodontal disorder
  - Bad breath: Possibly indicating caries, periodontitis, another oral disorder, or sometimes a pulmonary disorder
- The dorsal and ventral surfaces of the tongue are examined. Common age-related changes include varicose veins on the ventral surface, erythema migrans (geographic tongue), and atrophied papillae on the sides of the tongue. In edentulous patients, the tongue may enlarge to facilitate chewing; however, enlargement may also indicate amyloidosis or hypothyroidism. A smooth, painful tongue may indicate vitamin B12 deficiency.
- Dentures should be removed before the mouth is examined. Dentures increase risk of oral candidiasis and resorption of the alveolar ridges. Inflammation of the palatal mucosa and ulcers of the alveolar ridges may result from poorly fitting dentures.
- The interior of the mouth is palpated. A swollen, firm, and tender parotid gland may indicate parotitis, particularly in dehydrated patients; pus may be expressed from Stensen's duct when bacterial parotitis is present. The infecting organisms are often staphylococci.
- Painful, inflamed, fissured lesions at the lip commissures (angular cheilitis) may be noted in edentulous patients who do not wear dentures; these lesions are usually accompanied by a fungal infection.

- Temporomandibular joint: This joint should be evaluated for degeneration (osteoarthrosis), a common age-related change. The joint can degenerate as teeth are lost and compressive forces in the joint become excessive. Degeneration may be indicated by joint crepitus felt at the head of the condyle as patients lower and raise their jaw, by painful jaw movements, or by both.
- Neck: The thyroid gland, which is located low in the neck of elderly people, often beneath the sternum, is examined for enlargement and nodules.
  - Carotid bruits due to transmitted heart murmurs can be differentiated from those due to carotid artery stenosis by moving the stethoscope up the neck: A transmitted heart murmur becomes softer; the bruit of carotid artery stenosis becomes louder. Bruits due to carotid artery stenosis suggest systemic atherosclerosis. Whether asymptomatic patients with carotid bruits require evaluation or treatment for cerebrovascular disease is unclear.
  - The neck is checked for flexibility. Resistance to passive flexion, extension, and lateral rotation may indicate a cervical spine disorder. Resistance to flexion and extension can also occur in patients with meningitis, but unless meningitis is accompanied by a cervical spine disorder, the neck can be rotated passively from side to side without resistance.

Chest and Back

- Breasts: In men and women, the breasts should be examined annually for irregularities or nodules. For women, monthly self-examinations are also recommended, as is annual screening mammography, especially for women who have a family history of breast cancer. If nipples are retracted, pressure should be applied around the nipples; pressure everts the nipples when retraction is due to aging but not when it is due to an underlying lesion.
- Heart: Heart size can usually be assessed by palpating the apex. However, displacement caused by kyphoscoliosis may make assessment difficult.
- Auscultation should be done systematically. In elderly patients, a systolic murmur most commonly indicates
  - **Aortic valve sclerosis:** Typically, this murmur is not hemodynamically significant. It peaks early during systole and is rarely heard in the carotid arteries.
- However, systolic murmurs may be due to other disorders, which should be identified:
  - **Aortic valve stenosis:** This murmur, in contrast to that of aortic valve sclerosis, typically peaks later during systole, is transmitted to the carotid arteries, and is loud (> grade 2); the 2nd heart sound is dampened, pulse pressure is narrow, and the carotid upstroke is slowed. However, in elderly patients, the murmur of aortic valve stenosis may be difficult to identify because it may be softer, a 2nd heart sound is rarely audible, and narrow pulse pressures are uncommon. Also, in many elderly patients with aortic valve stenosis, the carotid upstroke does not slow because vascular compliance is diminished.
  - **Mitral regurgitation:** This murmur is usually loudest at the apex and radiates to the axilla.
  - **Hypertrophic obstructive cardiomyopathy:** This murmur intensifies when patients do a Valsalva maneuver.
- Fourth heart sounds are common among elderly people without evidence of a cardiovascular disorder and are commonly absent among elderly people with evidence of a cardiovascular disorder. Diastolic murmurs are abnormal in people of any age. Unexplained and asymptomatic sinus bradycardia in apparently healthy elderly people may not be clinically important.
- If new neurologic or cardiovascular symptoms develop in patients with a pacemaker, evaluation for variable heart sounds, murmurs, and pulses and for hypotension and heart failure is required. These symptoms and signs may be due to loss of atrioventricular synchrony.

GI System

- The abdomen is palpated to check for weak abdominal muscles, which are common among elderly people and which may result in hernias. Most abdominal aortic aneurysms are palpable as a pulsatile mass; however, only their lateral width can be assessed during physical examination. In some patients (particularly thin ones), a normal aorta is palpable, but the vessel and pulsations do not extend laterally. The liver and spleen are palpated for enlargement. Frequency and quality of bowel sounds are checked, and the suprapubic area is percussed for tenderness, discomfort, and evidence of urinary retention.
- The anorectal area is examined externally for fissures, hemorrhoids, and other lesions. Sensation and the anal wink reflex are tested. A digital rectal examination (DRE) to detect a mass, stricture, tenderness, or fecal impaction is done in men and women. Fecal occult blood testing is also done.

Male GU System

- The prostate gland is palpated for nodules, tenderness, and consistency. Estimating prostate size by DRE is inaccurate, and size does not correlate with urethral obstruction; however, DRE provides a qualitative evaluation.

Female Reproductive System

- Regular pelvic examinations, with a Papanicolaou (Pap) test every 2 to 3 yr until age 70, are recommended. At age 70, testing can be stopped if results of the previous 2 consecutive tests were normal. If women ≥ 70 have not had regular Pap tests, they should have at least 2 negative tests, 1 yr apart, before testing is stopped. Once Pap testing has been stopped, it is restarted only if new symptoms or signs of a possible disorder develop. If women have had a hysterectomy, Pap tests are required only if cervical tissue remains.
- For pelvic examination, patients who lack hip mobility may lie on their left side. Postmenopausal reduction of estrogen leads to atrophy of the vaginal and urethral mucosa; the vaginal mucosa appears dry and lacks rugal folds. The ovaries should not be palpable; palpable ovaries suggest cancer. Patients should be examined for evidence of prolapse of the urethra, vagina, cervix, and uterus. They are asked to cough to check for urine leakage and intermittent prolapse.

Musculoskeletal System

- Joints are examined for tenderness, swelling, subluxation, crepitus, warmth, redness, and other abnormalities, which may suggest a disorder:
- Heberden's nodes (bony overgrowths at the distal interphalangeal joints) or Bouchard's nodes (bony overgrowths at the proximal interphalangeal joints): Osteoarthritis
- Subluxation of the metacarpophalangeal joints with ulnar deviation of the fingers: Chronic RA
- Swan-neck deformity (hyperextension of the proximal interphalangeal joint with flexion of the distal interphalangeal joint) and boutonnière deformity (hyperextension of the distal interphalangeal joint with flexion of the proximal interphalangeal joint): RA
- These deformities may interfere with functioning or usual activities.
- Active and passive range of joint motion should be determined. The presence of contractures should be noted. Variable resistance to passive manipulation of the extremities (gegenhalten) sometimes occurs with aging.

Feet

- Diagnosis and treatment of foot problems, which become common with aging, help elderly people maintain their independence. Common age-related findings include hallux valgus, medial prominence of the 1st metatarsal head with lateral deviation and rotation of the big toe, and lateral deviation of the 5th metatarsal head. Hammer toe (hyperflexion of the proximal interphalangeal joint) and claw toe (hyperflexion of the proximal and distal interphalangeal toe joints) may interfere with functioning and daily activities. Toe deformities may result from years of wearing poorly fitting shoes or from RA, diabetes, or neurologic disorders (eg, Charcot-Marie-Tooth disease). Occasionally, foot problems indicate other systemic disorders.

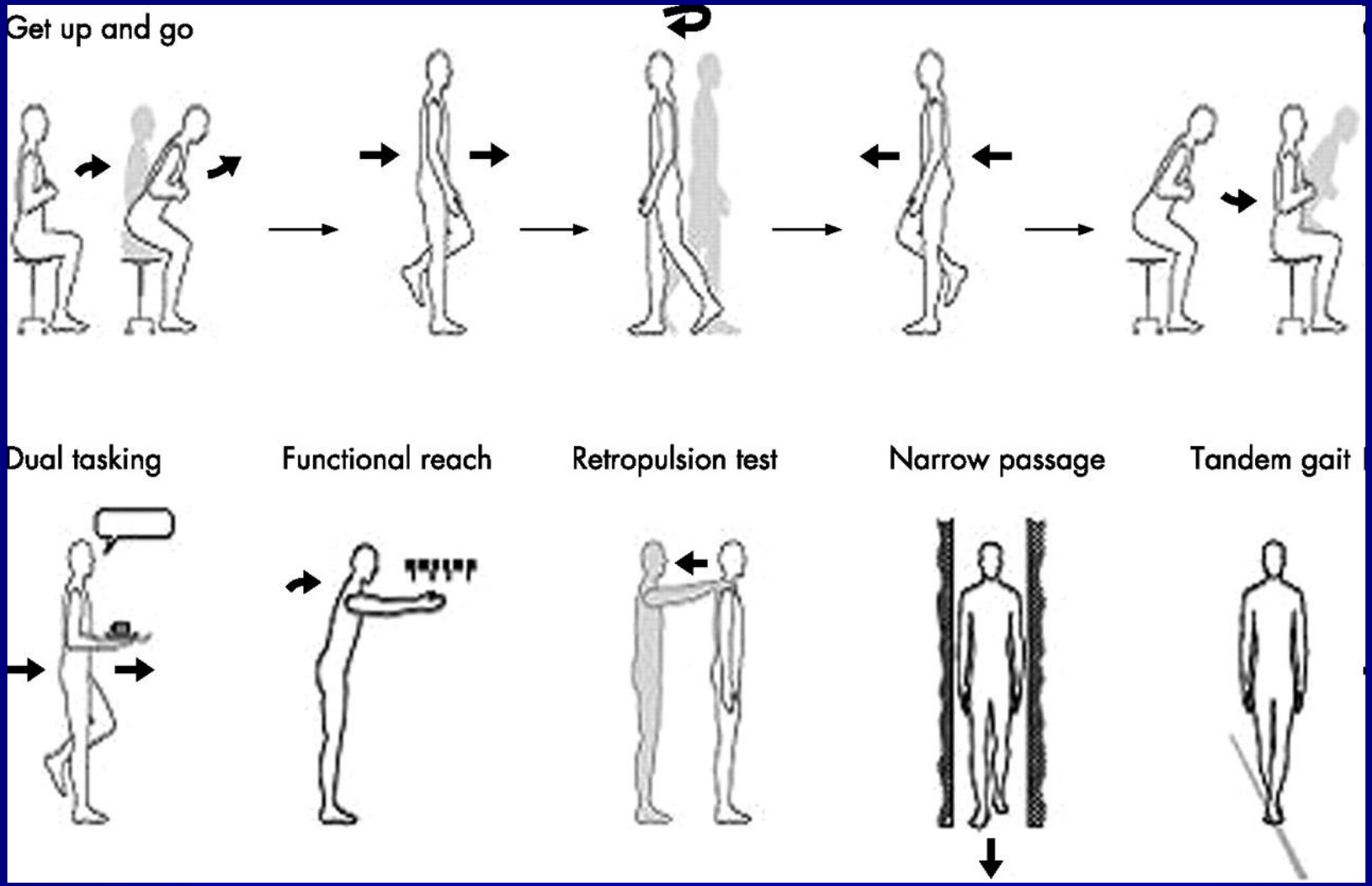
Neurologic System

- Neurologic examination for elderly patients is similar to that for any adult. However, nonneurologic disorders that are common among elderly people may complicate this examination. For example, visual and hearing deficits may impede evaluation of cranial nerves, and periarthritis (inflammation of tissues around a joint) in certain joints, especially shoulders and hips, may interfere with evaluation of motor function.
- Signs detected during the examination must be considered in light of the patient's age, history, and other findings. Symmetric findings unaccompanied by functional loss and other neurologic symptoms and signs may be noted in elderly patients. Clinicians must decide whether these findings justify a detailed evaluation to check for a neurologic lesion. Patients should be reevaluated periodically for functional changes, asymmetry, and new symptoms.

- Motor function: Patients can be evaluated for tremor during handshaking and other simple activities. If tremor is detected, amplitude, rhythm, distribution, frequency, and time of occurrence (at rest, with action, or with intention) are noted.
- Muscle strength: Elderly people, particularly those who do not do resistance training regularly, may appear weak during routine testing. For example, during the physical examination, the clinician may easily straighten a patient's elbow despite the patient's effort to sustain a contraction. If weakness is symmetric, does not bother the patient, and has not changed the patient's function or activity level, it is likely to be clinically insignificant. Increased muscle tone, measured by flexing and extending the elbow or knee, is a normal finding in elderly people; however, jerky movements during examination and cogwheel rigidity are abnormal.
- Sarcopenia (a decrease in muscle mass) is a common age-related finding. It is insignificant unless accompanied by a decline or change in function (eg, patients can no longer rise from a chair without using chair arms). Sarcopenia affects the hand muscles (eg, interosseous and thenar muscles) in particular. Weak extensor muscles of the wrist, fingers, and thumb are common among patients who use wheelchairs because compression of the upper arm against the armrest injures the radial nerve. Arm function can be tested by having patients pick up an eating utensil or touch the back of their head with both hands.
- Coordination: Motor reaction time and motor coordination are tested. Reaction time often increases with aging, partly because conduction of signals along peripheral nerves slows. Coordination decreases because of changes in central mechanisms, but this decrease is usually subtle and does not impair function.

Gait and posture

- All components of gait should be assessed; they include initiation of walking; step length, height, symmetry, continuity, and cadence (rhythm); velocity (speed of walking); stride width; and walking posture.
- Sensation, musculoskeletal and motor control, and attention, which are necessary for independent, coordinated walking, must also be considered.
- Normal age-related findings may include the following:
  - Shorter steps, possibly because calf muscles are weak or because balance is poor
  - Reduced gait velocity in patients > 70 because steps are shorter
  - Increased time in double stance (when both feet are on the ground), which may be due to impaired balance or fear of falling
  - Reduced motion in some joints (eg, ankle plantar flexion just before the back foot lifts off, pelvic motion in the frontal and transverse planes)
  - Slight changes in walking posture (eg, greater downward pelvic rotation, possibly due to a combination of increased abdominal fat, abdominal muscle weakness, and tight hip flexor muscles; a slightly greater turn-out of the toes, possibly due to loss of hip internal rotation or to an attempt to increase lateral stability)



Pract Neurol 2007;7:158-171 doi:10.1136/jnnp.2007.120980

Mental status

- A mental status examination is important.
- Patients who are disturbed by such a test should be reassured that it is routine. The examiner must make sure that patients can hear; hearing deficits that prevent patients from hearing and understanding questions may be mistaken for cognitive dysfunction. Evaluating the mental status of patients who have a speech or language disorder (eg, mutism, dysarthria, speech apraxia, aphasia) can be difficult.
- Orientation may be normal in many patients with dementia or other cognitive disorders. Thus, evaluation may require questions that identify abnormalities in consciousness, judgment, calculations, speech, language, praxis, executive function, or memory, as well as orientation. Abnormalities in these areas cannot be attributed solely to age, and if abnormalities are noted, further evaluation, including a formal test of mental status, is needed.
- With aging, information processing and memory retrieval slow but are essentially unimpaired. With extra time and encouragement, patients do such tasks satisfactorily (unless a neurologic abnormality is present).

Nutritional Status

- Aging changes the interpretation of many measurements that reflect nutritional status in younger people. For example, aging can alter height. Weight changes can reflect alterations in nutrition, fluid balance, or both. The proportion of lean body mass and body fat content changes. Despite these age-related changes, body mass index (BMI) is still useful in elderly patients. If abnormalities in the nutrition history (eg, weight loss, suspected deficiencies in essential nutrients) or BMI are identified, thorough nutritional evaluation, including laboratory measurements, is indicated.

Key points

- Valuable information about a patient's function can be gained by observing the patient.
- Physical examination should include all systems, particularly mental status, and may require 2 sessions.

EO

- Approccio clinico o strumentale?
- L'eco addome, l'Rx del torace, l'ecocardiogramma sono "estensioni" dell'EO fisico?

Conclusioni

- L'EO dell'anziano è COMPLESSO?
- E' forse COMPLICATO….
- In alcuni elementi segue le "leggi della complessità" la cui conoscenza ci aiutano a "spiegare" fenomeni altrimenti considerato "atipici" o "anomali".
- La COMPLESSITA' non è una scusante al non sapere, al non saper fare, o al non fare…

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HOW DO YOU FEEL WHEN YOU GET UP IN THE MORNING ?
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