

## Atypical Illness Presentation in the Elderly

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The world's population is aging. Increased life expectancy and decreased death rates have contributed to a rapid rise in the number and population of individuals aged 65 years and older. The elderly population in developed countries is projected to increase by 60% during the next three decades [1]. Early diagnosis and treatment of disease is especially important in elderly patients, in whom physiological reserve is decreased and complications rapidly occur. Valuable treatment time can easily be lost however, when elderly patients with common ailments present with non-specific or atypical symptoms that mask the correct diagnosis [2]. Moreover, it has been observed that the classic model of aggregating presenting symptoms and signs into a diagnosis of a single pathological condition does not apply to the elderly as it does in younger persons [3].

The objective of this article is to highlight illness presentation in elderly patients, focusing on the atypical presentation in certain common diseases. Since a more detailed review is far beyond this scope, we deliberately preferred to describe topics encountered daily by clinicians in the community and hospital practice. Dementia and depression in the elderly merits a review of its own. Four factors influence the presentation of disease in the elderly: under-reporting of illnesses; changes in distribution and altered medical models of illnesses; non-specific presentations of diseases; and atypical presentations of diseases.

### Under-reporting of illnesses

Although older individuals might exaggerate symptoms with amplification and excessive demands on their physicians, the majority under-report their symptoms [4]. Several reasons for this are cited [5]:

- The prevalent attitude of ageism, namely the belief of caregivers and patients that old age is inextricably linked with disability and morbidity. This belief reduces the demand for health care since the manifestation of the disease may be dismissed as age-related changes.
- The perception of an unresponsive system of care, such as disinterested personnel or lack of facilities for older persons.
- Depression, which reduces the desire for improvement, and dementia, which may diminish the capacity to accurately describe symptoms. Even when described correctly, the physician expresses doubts that the patient knows what he is talking about.

- Denial, which may result from fears of economic, social or functional consequences.

Late presentation of disease is frequently related to under-reporting. The language of illness and notions concerning the nature of health and disease are determined by social as well as by regional and ethnic factors [6]. In old age, the depression often focuses on somatic complaints, particularly functions that are often problematic such as bowel function, mobility difficulties and painful joints [7].

### Changes in distribution and altered medical models of illnesses

Certain conditions have an increased prevalence in the elderly, namely cardio- and cerebrovascular disease, chronic renal failure, osteoarthritis, osteoporosis, gastrointestinal disease, depression, dementia, diabetes, urinary and gait disorders, to mention only the most frequent. The physician must therefore understand the epidemiological implications in the interpretation of various signs and symptoms [4].

Numerous studies have shown that multiple medical problems frequently occur in the elderly. For example, in individuals aged 65-74 the mean number of chronic conditions is 4.6 per person [6]. The classic medical model in which symptoms and signs are aggregated and correspond to a specific disease (the law of parsimony) applies to less than half of the elderly population [8]. Multiple diseases are likely to interact with each other and produce further organ compromise in a cascade of clinical deterioration: disease-disease interaction. The evaluation and treatment of a problem can have an adverse effect on other disorders: disease-treatment interaction.

### Non-specific presentation of illness

In elderly patients, the first sign of an acute illness or the exacerbation of a chronic condition is often functional or cognitive impairment rather than specific complaints referring to an affected organ system [2]. Immobility, instability (falls), incontinence and intellectual impairment (acute confusion-delirium and dementia) have been designated the "Giants of Geriatrics" [9], but also dizziness, eating/drinking difficulties, weight loss and failure to thrive are non-specific problems usually involving functional loss. Stress is likely to produce decompensation in the most vulnerable body system and generate functional loss rather than specific or classic manifestation. These non-specific

problems are frequently the first or major sign of a disease occurring in an organ system remote from the affected organ. For example, an 87-year-old woman with pneumonia may present solely with delirium and falls. Non-specific or atypical disease presentations are more common in frail elderly patients and imply adverse hospital outcome [10].

## Atypical presentation in common diseases

### Infectious diseases

The changes due to aging are not uniform and have a great deal of individual variation. Some elderly remain physiologically young, and when infected may present as patients in any other age group with typical signs and symptoms. However, atypical presentation of infection is common in the elderly, particularly those above 80 years of age, frail and suffering from multiple medical problems. The principal manifestation of infection, fever, is often absent in up to 20–30% of elderly patients with serious infections [11]. Diminished fever responses in the elderly compared to the young were reported in bacteremia, pneumonia [12] and infective endocarditis [13]. Berman et al. [14] observed a relatively low incidence of afebrile pneumonia among the elderly (13%), while we found that 9.5% of patients hospitalized mostly for pneumonia, urinary infections and sepsis were afebrile [15]. Due to altered febrile response in the elderly, a new definition of fever was proposed [11]: persistent elevation of body temperature of at least 1.2°C over normal values, regardless of the temperature measurement technique; and oral or rectal temperature of 37.2°C and 37.5°C or greater, respectively, on repeated measurements.

Attenuation of signs and symptoms and the delay in presentation causes the disease to present in an already advanced state [16]. Another study found that 10% of elderly male patients with pneumonia had no symptoms of the illness and only 35% had the classic pattern of fever, cough and leukocytosis, with 39% having no fever and 31% no leukocytosis [12]. Riquelme and coworkers [17] diagnosed atypical pneumonia in 24% of their patients. The association of dyspnea, cough and fever was found in only 32% of cases, and bilateral radiographic infiltrates and absence of leukocytosis was found in 30% and 26% of patients respectively. Metlay et al. [18] reported that elderly patients with community-acquired pneumonia had a significantly lower number of respiratory and non-respiratory symptoms compared with younger patients.

Urinary tract infection may present with atypical symptoms such as worsening or new onset of urinary incontinence and fecal impaction. The usual symptoms in younger patients such as an increase in urinary urgency or frequency may not be present [2]. Also, there may not be a large number of white cells and the nitrates may be negative [19]. The presence of multiple organisms on cultures, traditionally viewed as evidence of contamination, may be real and not a contaminant. It is important to emphasize that the prevalence of asymptomatic bacteriuria rises with age,

reaching rates of 20–50% in women and 20% in men over 80 years of age. In a study involving bacteremic patients, four clinical parameters were found to be both independently and significantly associated in an elderly patient: a rapid onset of infection (defined as  $\leq 48$  hours between the earliest manifestation of bacteremia and the time of blood sample), a recent altered general state, fever, and a clinical indication of the source of the infection. Leukocytosis was lacking in 20% of the elderly bacteremic patients, with hypothermia present in less than 1% [20].

Meningitis has a later peak of incidence among person aged 65 and older [21] and is a highly fatal disease in this age population. Among older patients with meningitis 57–96% experience confusion and 24–80% have headaches. However, these symptoms may be mistakenly attributed to non-infectious causes. Nausea, vomiting, seizures, weakness and photophobia are also frequently seen [21,22]. Nuchal rigidity is a less sensitive and specific sign of meningitis [21]. Many elderly adults may have nuchal rigidity due to cervical spondylosis or Parkinson's disease.

During the past decade tuberculosis has reemerged as an worrying disease in developed countries. The presentation of the disease in the elderly is often uncharacteristic, with the disease tending to be more insidious on onset, pyrexia often absent, and hemoptysis less common. Changes on chest X-ray may frequently present in the mid- or lower zones. The elderly are at greater risk of extrapulmonary tuberculosis that also presents in uncharacteristic ways [23]. Teale's group [24] found that the elderly had more frequent lower zone and miliary shadowing than patients aged 64 years and younger, but the clinical presentation, organs affected and drug sensitivities of organisms were similar.

### Cardiac diseases

Clinical presentation and characteristics of myocardial infarction are significantly distinct between older and younger patients. In the elderly, cardiovascular signs consist of congestive heart failure, palpitation, atrial fibrillation and new-onset angina. Older patients will frequently have an unrecognized or silent infarction or, when present, the symptoms will be atypical [25]. Chest pain remains the most frequently reported symptom up to age 85, but it may be vaguely described or poorly localized. The pain can be referred and isolated to the throat, shoulder or abdomen [2]. Instead of chest pain, the elderly patient may have shortness of breath or neurological symptoms such as confusion [25]. Other atypical presentations include syncope and stroke [2].

Paul and colleagues [26] found that the elderly are significantly less likely to report typical chest pain, have a substantially higher incidence of congestive heart failure, and evolve a greater proportion of non Q-wave infarction. Tresch et al. [27] reported that despite a history of coronary heart disease, elderly patients with ischemic pain significantly delayed more than 6 hours in seeking medical assistance compared to younger patients. Approximately 40% of elderly patients did not demonstrate typical ST

elevation with the development of Q waves compared to 25% of younger patients (<70 years), and significantly more elderly patients demonstrated left ventricular dysfunction than younger ones.

The prevalence of heart failure increases with age. In the Framingham study [28] the prevalence was 10% for those aged 80–89 years. The elderly may present as the young, with classical symptoms of heart failure; however, typical symptoms such as exertional dyspnea may be absent in the elderly whose daily lives include very little activity. They may present with complaints of confusion, falls, blackouts and fits. The loss of fat and muscle tissue or undernutrition due to heart failure (cardiac cachexia) is common [29].

The physical examination may not be consistent with congestive heart failure. Basilar rales, a sign of left ventricular failure, may be caused by lung disease or a recumbent posture. Leg edema can often be a result of venous stasis or hypoalbuminemia. The fourth heart sound is not a reliable sign at this age, but the elevation of a jugular venous pulse and the third heart sound are more specific [2,29].

### Endocrine diseases

Thyroid disease is highly prevalent in the elderly. Between 15 and 25% of all cases of hyperthyroidism occur in persons over 60 years of age [30]. As many as 20% of the hyperthyroid elderly fail to have either an enlarged or even palpable thyroid gland. The classic eye findings occur less frequently; and tremor, when present, is coarse and not fine and is often missed or mistakenly diagnosed for senility or Parkinson's disease. The elderly will rarely complain of loose stools, but may note a correction of preexisting constipation. Whereas young hyperthyroid patients usually complain of an increase in their appetite, older patients tend to become anorexic. Significant weight loss is almost always noted and may lead to proximal muscle weakness and malnutrition [31]. "Apathetic thyrotoxicosis" is used to signify elderly patients who fail to present with classic signs of hyperthyroidism and appear depressed, frail, wasted and unanimated. Patients are frequently misdiagnosed as having a malignancy or suffering from depression [30]. Many clinical signs and symptoms associated with hypothyroidism are often attributed to aging problems. These include constipation, lethargy, cardiomegaly and mental deterioration [31]. Doucet's team of researchers [32] compared hypothyroidism in the young and elderly. Fatigue and weakness were found in more than 50% of the elderly, but chills, paresthesiae, weight gain and cramps were significantly less frequent.

The classic symptoms of diabetes mellitus – polyuria, polyphagia and polydipsia – may or may not be present in the setting of hyperglycemia during later life [33]. The elderly may present with severe dehydration, hyperosmolarity and even coma without prior warning [31]. Polyuria can be confused with prostatic difficulties or urinary incontinence or other bladder or sphincter disease. Other

long-term sequelae of hyperglycemia include neuropathies affecting gastric emptying, sensation, vasomotor stability and gait. One of the most common atypical findings of diabetes mellitus is an altered mental state that may present as delirium, dementia and behavioral changes that are caused by hyper- or hypoglycemia [33].

### Acute abdominal and peptic disease

Cholecystitis, bowel obstruction and appendicitis constitute approximately 33%, 25% and 14% of acute abdominal presentations, respectively. Ulcers, mesenteric ischemia, diverticulitis and cancers are additional causes [34]. Certain factors in this age group contribute to changes in presentation and diagnostic difficulties [35]; i.e., clinical features of acute abdominal inflammatory conditions are less pronounced due to thinner abdominal muscles with some atrophy that reacts with less guarding or spasms. Leukocytic reaction tends to be lower, and temperature elevation can be delayed and raised to a lesser degree than in younger patients. In addition, anatomical factors may be altered. For example, poor blood supply to the appendix and its thinner wall predisposes to perforation and gangrene. Also, multiple preexisting abdominal disease may lead to diagnostic confusion, including gallstones, diverticulosis, hiatal hernia, atherosclerosis of abdominal vessels, chronic constipation and some degree of colon enlargement that increases with age.

The incidence of cholelithiasis increases with age, exceeding 50% in those over 70. Complications including empyema perforation and cholecystoduodenal fistulas are more common in the elderly. Higher incidences of complications are in part explained by delays in diagnosis and treatment due to obscure presentation in this population [36]. Acute pancreatitis occurs predominantly in elderly females with a presentation similar to that in the young, but like cholelithiasis, the clinical findings may be subtle and the severity of disease often greater than suggested by the presenting symptoms and signs [36]. In 5–10% of cases, pain is absent, physical examination can be unremarkable or show non-specific signs, and true abdominal rigidity is unusual [37].

In a large study of elderly patients who underwent appendectomy [38], only 20% classically presented with nausea or vomiting, fever >38.6°, right lower quadrant tenderness and elevated or shifted white blood count. Only 61%, 33%, 47% had right lower quadrant pain, nausea or vomiting and fever >37.6° respectively. Tenderness that was atypically diffuse or localized other than the right lower quadrant was found in 23%.

In the elderly, diverticulitis may occur in a particularly aggressive form – exhibited by phlegmonous inflammation, fistula to adjacent organs and skin, obstruction of the colon – and has a high postoperative morbidity and mortality [35]. Many episodes of acute diverticulitis subside. The patient has moderate signs of pain, tenderness, abdominal dis-

tention with modest temperature elevation, and leukocytosis.

The incidence of peptic ulcers increases with age in both women and men. The elderly appear to be at particular risk to develop peptic ulcers and complications from non-steroidal anti-inflammatory drugs [39]. Peptic ulcers in the elderly frequently present in an atypical way, with absence of pain in a third of the cases. If pain is present it can be vague and poorly localized. The presentation of an ulcer may be dominated by systemic symptoms related to blood loss and anemia [39]. Kempainen et al. [40] compared clinical presentations between younger and older patients and found significant differences. In the older patients, gastric ulcers were more common than duodenal. Typical epigastric pain was rare, ulcer bleeding more common and ulcer location more atypical than in young patients.

## Conclusion

The elderly patient population is increasing steadily. The medical approach to the older person is quite different from that to the younger, and requires better understanding and knowledge regarding their illnesses. The spectrum of complaints is different, the manifestation of distress is subtler, and there is a high prevalence of non-specific and atypical presentation of the disease. Even though enormous progress has been made in medical technology, physicians must be attentive and vigilant to the illness presentation of the elderly since they play a pivotal role in avoiding delay in diagnosis and in improving patient outcome.

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