

Type of Presentation of Coronary Artery Disease According the Family Life Cycle

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Article Information

Received date: Oct 17, 2016

Accepted date: Nov 30, 2016

Published date: Dec 05, 2016

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Keywords Coronary Artery Disease; Life Cycle; Symptoms; Transitions; Diagnosis; Life course; Holistic; Family Medicine; Qualitative Research

Abstract

Objective: The purpose of the study is to explore the symptoms expressed by patients who experienced an acute coronary disease, trying to identify typologies and explore the hypothesis that the different stages of family life cycle can modulate groups of patients showing specific patterns of presentation of symptoms and signs.

Patients and Methods: A methodology qualitative, descriptive, of multiple case, and document analysis was used. It was revised and retrospectively analyzed the narrative included in medical history of family medicine, reports of hospital specialists, and the family life cycle according to the genogram, for building a category ("type"), in patients with clinical history in a consultation of Family Medicine in Toledo, Spain, and who were diagnosed with coronary heart disease in the last 20 years.

Results: 32 cases were treated by a clinical cadre of coronary heart disease. Two of them were not included for lack of information. Patients from 35 years to >65 years without children at home (empty nest) experience symptoms in "Peculiar or Ostentatius" type. The women > 65years do it in "Anxious" type. Patients aged 35years to >65 with children at home experience symptoms in "Discreet" type, and >65 years living with adult children tend to relate stressful events: "Stressed" type. Patients >65 years living alone experience symptoms in a "Stoic" type.

Conclusion: When an acute coronary syndrome occurs, the different stages of family life cycle can show differences in the presentation of symptoms. The recognition of these types of patients who express a particular clinic, and they show different shades in certain respects with the classic syndrome of chest pain, it may be useful to family physicians for diagnosis, providing additional information to factors risk, history and exploration, and this is a working hypothesis to be validated with other research methods.

Introduction

Family physicians provide care for patients of all ages, from newborns to the elderly. In addition to its wide scope of practice, Family Medicine is characterized by its emphasis on understanding of the whole person, its partnership approach with patients over many years, contemplates human life cycle continuously and its command of medical complexity [1-3].

Systemic theory emphasizes the interaction and context. The individual behavior is seen in the context in which it occurs. The systemic model stresses the interactive process between psychosocial demands over time and key components of individual and family functioning [4].

The family dynamics can act over immunological structures of the members. Significant events that result in changes in the family, intended and unintended, good or bad, increase the vulnerability of the person to all sorts of diseases and accidents [5]. The individual disease is an expression of the sick or problematic context. The patient is a spokesman from sick structure contextual (family conflict, social conflict...). Emotional distress increases susceptibility to physical diseases: the stress of a test increases susceptibility to viral infection; stress of the lack of control at work or in the events of daily life increases the susceptibility to cardiovascular disease; the discomfort emotional can lead to organic disease by affecting the immune response, etc. [6].

The family life cycle is a development process through a series of steps involving changes and adaptations. These changes can lead to crisis, of lower or higher intensity in the family, since moving from one stage to other, the family rules change, causing in the family system adverse situations such as after the separation of one of its members or arrival of the first child [7,8]. Also, it has been communicated that life stress is related to atherosclerosis [9].

On the other hand, symptoms can be expressions of biological alterations, the group context, or symbols or ways of coping with a situation. One of the factors which influence the type of symptoms is the family life cycle. This perspective considers the social and physical situations, and the resulting behavior, as well as biological and psychosocial processes that act through all stages of life, affecting not only the risk of disease, but framing the symptomatic expression the affected people. Behind all physical symptoms are already stored feelings, fears, thoughts, and emotional reactions [10].

For example, pain can be both immediate sensation and mediated by complex interpretations [11].

More than six decades of empirical research have shown that psychosocial risk factors like low socio-economic status, lack of social support, stress at work and family life, depression, anxiety, and hostility contribute both to the risk of developing coronary heart disease [12]. And it has been communicated gender differences in presentation of symptoms and diagnosis of chest pain in Primary Care [13]. The medical course of coronary artery disease has been predicted not only by medical variables but also by psychological and social variables. And knowledge of these factors may help to identify patients who need to be followed more closely, so that medical complications can be reduced by treating early signs of disease progression more aggressively [14].

When doctors make decisions the uncertainty is ever-present. For general practitioners/family doctors the task of diagnosing and prognosing is particularly difficult; they are faced with a broad range of unselected patients and their problems. For this particular task they have developed strategies that are adapted to the ecology of their practice [15].

In this context, the purpose of the study is to explore the symptoms expressed by patients and collected by the doctor, in people who had an acute coronary disease, and relate the experience of the symptoms with their family life cycle, trying to identify “types” of patients in order to explore the hypothesis that the different stages of family life cycle can modulate several natural groups of patients showing specific patterns of presentation of symptoms and signs of coronary heart disease in Primary Care.

Patients and Methods

It was revised and retrospectively analyzed the narrative included in medical record of Family Medicine, the reports of hospital

specialists, and the family life cycle according to the genogram of the patients, that until date 13/01/31, they were once diagnosed of coronary heart disease in the last 20 years. The medical office has been served by the same family doctor the last 25 years.

The genogram (schematic model of the structure and processes of a family, included the family structure, life cycle when that family is, the important life events, family resources, and family relational patterns) is ideal document to register the family life cycle. In it can be find information about the family, with data concerning phases of the cycle, the family structure, life events and relationships [16-19], Many authors have multiple classifications of the life cycle, we classify it, for the purposes of the study: 1) Parents of middle age (35-49 years), married or separated: the family with independent children away from home; 2) Parents of middle age (35-49 years), married or separated: the family with teen age children, with children at home; 3) Older Parents (50-64 years), married, separated or widowed without children at home; 4) Older Parents (50-64 years), married, separated or widowed, with children at home; 5) Family in later life (over 65) who live alone together; 6) Family in later life (over 65 years) living with adult children; and 7) Older who is alone (over 65 who lives alone) [20-23]

We transcribed “verbatim” (exact reproductions of sentences)-the symptoms exactly as they were expressed by the patients-, and their life cycle in their clinical history. Some of the patients of his list are presented in Table 1.

We proceeded as follows: 1) The researchers read the stories that collects medical symptoms expressed by the patient. This “phenomenon” has a number of dimensions: pain location, intensity, irradiation, duration, emphasis, vegetative courtship, behavior of seeking medical assistance, etc; 2) reading the full text of the phenomenon (acute coronary syndrome) it was related, in each case, with at every stage the life cycle, and it was tried to give it a descriptive name that encode it (give a category or a key phrase to

Table 1: Some Textual Transcripts of Clinical Symptoms Expressed by the Patients, Collected from Medical History, and Their Life Cycle.

Some Patients	Textual Transcripts of Clinical Symptoms Expressed by the Patients, Collected from Medical History, and their Life Cycle
71 years old man	He goes to the emergency room for an episode of pain oppressive in central chest, radiating to both arms and it is accompanied by vegetative symptoms of 3 hours. Several episodes of lower intensity and duration in the previous days. Widowed. His wife died 11 months before this coronary syndrome. He lived alone. Three married children.
55 years old man	Precordial oppressive pain, accompanied by dizzines. Tooth extraction 5 h. before with actively bleeding. He lives with his wife and 4 daughters of 22, 20, 18 and 15 years old.
72 year old woman	While she was previously well and unrelated to the effort, insidiously begins to notice pain in both subclavian regions as if she was broken inside in a much wider area than the surface where she perceived the pain. The pain limited deep inspiration and had a total duration of 3 hours during which presented exacerbations and remissions. Previously she referred similar symptoms but of lesser intensity. She lives alone. She is widow on 2 occasions; her three children are married and with children.
82 year old woman	She presents from one month ago (with several visits to the emergency room for pain "musculoskeletal", within of 15 days previous), intermittent pain radiating to center of chest, back and left arm, which lasts about 1 hour, which yields with acetaminophen. When she has pain, it gets worse with decubitus and relieved temporarily to walking; also she believed to increase to the palpation. She lives with her husband. Three children married and with children.
48 years old man	He presented a picture of chest pain radiating to the shoulder blade, of 2 hours of duration, with no vegetative symptoms, and pain began at rest. Two previous episodes, 24 hours before, self-limited and of short duration, which he expresses them as an intense "stinging" epigastric. He is separated with two children aged 24 and 17 years old living with the mother.
45 years old man	After the completion of an effort, begins with epigastric pain unirradiated without vegetative symptoms, and with intermittent characteristics, which lasted a few hours. He is married and lives with his wife and only child of 8 years old.
66 year old woman	She presented crushing chest pain, radiating to the left arm of 1 hour of duration, which appeared at rest without vegetative symptoms. In turn presents a chest pain of musculoskeletal characteristics which increases to the palpation. She is widow; and lives alone.
45 years old man	While he was shoeing a horse, presents dizziness, sweating and discomfort in center of chest, as "burning", radiating to jaw. It disappears spontaneously in 30 minutes. He has not symptoms of heart failure or palpitations. He lives alone. He is now in the process of separation, with 2 teenage children (19 and 16 years old) living with his ex-wife.
51 years old man	He presented a picture of crushing pain in the center chest, radiating to the jaw and left arm, since 4 hours, which was presented when he was at home after hearing the news that her son suffered a traffic accident. No dyspnea or palpitations. He lives with his wife and 2 children 24 and 20 years old.

Table 2: Encodings or Categories or Key Phrase that Defines a "Typology" of Patients by Family Life Cycle.

Stage of Family Life Cycle	Clinical Symptoms of Acute Coronary Syndrome, Expressed by the Patient (and which were Reflected in the Medical Record by Physician) and the Category or "Type"
Parents of middle age (35-49 years), married or separated; the family with independent children away from home (n=4).	Typical chest pain (chest pain in pre-cordial region), which can be striking. Query time minutes: "Ostentatious".
Parents of middle age (35-49 years), married or separated; the family with teenage children at home (n=5).	Chest pain that tends to be typical and it is unremarkable for the patient. Query time from hours to weeks: "Discrete".
Older parents (50-64 years), married, separated or widowed, childless home (n=1)	Less typical clinical and unimpressive. Query time of days: "Picturesque or Peculiar".
Older parents (50-64 years), married, separated or widowed, with children at home (n=8)	Typical chest pain, after stress or stressful event, with no flashy intensity, which it given little importance, taking hours or days to see doctor: "Suffered".
Family in later life (over 65) who live alone together (n=4).	In most women, chest pain more striking with vaso-vegetative or musculoskeletal symptoms. Query time in minutes or hours: "Anxious" In the male, most atypical pain. Query time in days: "Different and Variable".
Family in later life (over 65 years) living with adult children (n=2).	Typical pain, with or without vegetative symptoms after a stressful event or moderate effort. Query time in minutes or hours: "Stressed Or Suffocated".
Old persons (over 65) living alone (n=6).	Typical mild clinical symptoms, after slight efforts, to which it given little importance for the patient. Query time of days or weeks or casual query: "STOIC".

draw the expression of symptoms); 3) finally, a description "type", was built [24,25].

Table 2 presents the encodings or categories or key phrase defining a "typology" in patients according to the family life cycle.

To meet the criteria of reliability, the stories were read by the researchers to reach agreements on the categories that were used. The process was as follows: 1) Each investigator made several individual readings for each patient, until obtaining categories from all patients; 2) A group agreement of the categories was made. To facilitate this process, we worked from the categories of one researcher which were collated in the work group; and 3) Subsequently the results were interpreted.

The informed consent of all patients or their guardians for using of data in research was obtained. As a technique to control possible bias in data collection and analysis, triangulation between results obtained with the data that had been reported in the literature was

used. However, because of the nature of the study, it was not possible to use the check or return of the results and interpretations of the participants in order to check whether they felt represented them.

Finally, a mental map was drawn not only to have the results in graph form, but as a qualitative technique to understand the results comprehensively or global [26-28], using the free online system bubbl.us® [29].

Results

32 cases were treated by coronary disease in the last 20 years, which maintained their medical record and genogram in the consultation. Two of them were not included for lack of narrative description of symptoms.

Table 1 shows some verbatim transcripts as medical history collected the symptoms expressed by the patient and their life cycle.

Table 2 and Figure 1 show encodings or categories or key phrases that defines a "Typology" of patients by family life cycle.

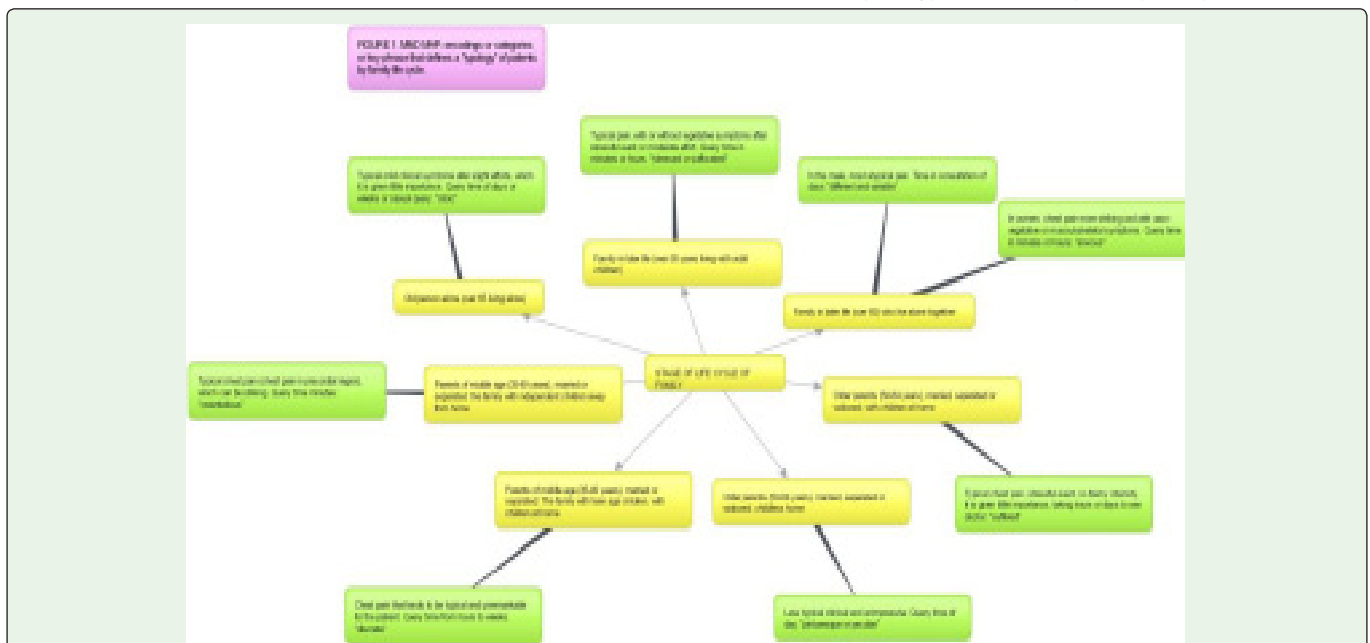


Figure 1: Mind Map: Categories that define a "Typology" of Patients by Family Life Cycle.

Table 3: Case Examples "Type".

Stage of Family Life Cycle	Case "Type"
Parents of middle age (35-49 years), married or separated; the family with independent children away from home (n=4)	Male, 46, unemployed, separated, who goes to consulting, after 12 km. and intense effort by bicycle and present an episode of oppressive chest pain and gagging with subsequent vomiting, without irradiation. He was cycling 20 minutes with pain to get to the health center. He is separated and living with new partner; has 2 sons aged 21 and 15, outside the home or living with his mother.
Parents of middle age (35-49 years), married or separated; the family with teenage children at home (n=5)	47 year old male, who was sent to the emergency room after an ECG made as review of his diabetes mellitus type 2, which showed ischemia in the lower face, being asymptomatic. He reported have had a month ago an episode of chest pain oppressive, in precordial region, coinciding with an effort that lasted about 2-3 days and ceding with rest. The episodes of pain were not radiated, nor were they accompanied by vegetative symptoms. He lived with his wife and three children teenagers.
Older parents (50-64 years), married, separated or widowed, childless home (n=1)	Male 58 years old, married, with one child living out home, who for a week feels "stinging or pain" in throat when dancing or walking, after a few minutes in this activity, disappearing at rest. "I love dancing, and I am going two or three times a week to make ballroom dancing ... but now cannot".
older parents (50-64 years), married, separated or widowed, with children at home (n=8)	Male who at age 51 presents an episode of oppressive chest pain radiating to the left arm of 2 hours of duration. It began after a crisis of productive cough, with sweating and nausea. He walked to the health center and made an appointment to doctor for the next day. On the street he saw the doctor who was going to the consulting room, and he explained doctor that he need to see him because of the chest pain. He was married with a son of 11 years. He lives with his wife and son.
Family in later life (over 65) who live alone together (n=4)	An 85-year-old woman is brought by her daughter to the office for presenting episodes of chest pain, with feeling nauseous, and a knot in the chest, at rest. She refers that this morning, to getting out of bed, have started with anxiety, fatigue, and sweating. She has a bad appearance and there is a mucocutaneous pallor. Male 72 years who consulted for occasional numbness and prick type discomfort in left forearm and hand with efforts, predominantly on every finger, when walking or make an effort, not accompanied by other symptoms. The discomfort disappears with rest after 2-3 minutes and occur daily, but not always, after performing efforts. He denies dyspnea, palpitations or chest pain and signs of cardiac failure.
Family in later life (over 65 years) living with adult children (n=2)	Male of 67 years old who came to the emergency room with dizziness, feeling of spinning objects, unstable gait, and with improvement after symptomatic treatment with sulphiride and metoclopramide. Two hours later begins with crushing chest pain, radiating to the left arm, without vegetative symptoms. He lives with his wife of 70 years old and a 37 year old unmarried daughter
Old persons (over 65) living alone (n=6)	Male 82, who lives alone, and he refers to the doctor, "by the way", who has a retrosternal pressure when he walks, mild to fast, without other symptoms

Table 4: Family Life Cycle Stages, the Problems Described in Literature and Symptoms in Patients Studied with Coronary Artery Disease.

Stage of Family Life Cycle	Problems and Critics Transitions in Families	Symtoms
Parents of middle age (35-49 years), married or separated; the family with independent children away from home (n=4)	Marital discord, the 40 crisis, empty nest, separation and divorce	Typical chest pain (oppressive chest pain in precordial region), which can be striking, with or without irradiation, with moderate to heavy exercise, or at rest, with or without vegetative symptoms. Query time in minutes.
Parents of middle age (35-49 years), married or separated; the family with teen age children at home (n=5)	Marital discord, the 40 crisis, separation and divorce. Domestic violence, school delays, difficulty of parents to set appropriate limits. Difficulty to exit of adolescent from the family	Chest pain that tends to be typical (oppressive chest pain in precordial region,) with the effort, but also with epigastric pain, and at rest, nondescript, without irradiation, with or without vegetative symptoms. Query time from hours to weeks.
Older parents (50-64 years), married, separated or widowed, childless home (n=1)	Empty nester, care and death of grandparents	Less typical clinical and unimpressive, with moderate exercise. Query time of day.
Older parents (50-64 years), married, separated or widowed, with children at home (n=8)	Syndrome pre-empty nest, care and death of grandparents	Typical chest pain (chest pain in precordial region) oppressive or not oppressive, after stress or stressful event, with or without vegetative symptoms, with or without radiation, non-striking intensity, and that patient seems to give little importance, taking hours or days for consulting.
Family in later life (over 65) who live alone together (n=4)	Retirement and old age; a caregiver spouse of another; prolonged grief reactions; depression, dementia, organic diseases; fear of disease and death.	In most women, chest pain more striking with vaso-vegetative symptoms and anxiety, fatigue and shortness of breath, or musculoskeletal pain occurring at rest. Query time in minutes or hours. In the senior male, a typical pain
Family in later life (over 65 years) living with adult children (n=2)	Retirement and old age; a caregiver spouse of another; prolonged grief reactions; depression; dementia; organic diseases; fear of disease and death	Typical pain, with or without vegetative symptoms, with irradiation, after a stressful event or pain after moderate effort. Query time in minutes or hours
Old persons (over 65) living alone (n=6)	Pathological grief; prolonged grief reactions; depression; dementia; organic diseases. The impact of the death in the family; the effects of chronic diseases in relationships; fear of disease and death. Anxiety to go the hospital and rejection of symptoms	Typical mild symptoms after slight efforts. It is given little importance by the patient. Query time of days or weeks or casual inquiry

Table 3 presents examples of cases "Type".

Table 4 presents the relationship between the family life cycle stages, the problems already described in the literature, and the clinical symptoms in the patients enrolled in the study with coronary artery disease.

We found that at the stage of the life cycle of parents of middle age (35-49 years), married or separated (family with independent children away from home) the patients tend to show symptoms ostentatious ("Ostentatious").

Parents at the stage of middle age (35-49 years), married or

separated (family with teen age children at home) express a clinic moderately, without excess (“Discrete”).

At the stage of older parents (50-64 years), married, separated or widowed without children at home, symptoms are rare, shocking or curious (“Picturesque”).

At the stage of older parents (50-64 years), married, separated or widowed, with children at home, they seem expressed symptoms of resignation (“Suffered”).

At the stage of family in later life (over 65 who live alone together), women seem to express the symptoms with more vaso-vagal courtship (“Anxious”), while men express different and inconstant symptoms (“Different and Variables”).

In stage over 65 who live together with adult children (family life cycle in later life) relate the symptoms with stressful events (“Stressed or suffocated”).

And finally, in the stage of the life cycle of old person alone (over 65 who lives alone), they seem to belittle the symptoms and remain calm against misfortune (“Stoics”).

Discussion

General comments

Chest pain is a common symptom which affects between 20-40% in the general population throughout life, and in Primary Care varies between 0.68% and 2.7%, depending on the inclusion criteria and country. It can be caused by a wide range of conditions, and potentially fatal coronary heart disease is the biggest concern for doctors and patients. However, systematic reviews on the sensitivity and specificity of symptoms and signs that are most useful for diagnosis of coronary heart disease are usually based on statistical data at the level of group studies, being very limited individual clinical descriptions [30-33].

Besides, chest pain is a heterogeneous clinical category with no coherent associations between signs and symptoms in patient level [34]. Patients with a known diagnosis of angina do not always describe their symptoms in a way that is consistent with diagnostic framework for the typicality of angina. [35].

In consequence, diagnosing the aetiology of chest pain is challenging. There is still a lack of data on the diagnostic accuracy of signs and symptoms for acute coronary events in low-prevalence settings [36]. The family doctors do not exclusively use the ‘classical’ signs and symptoms in their decision-making process for patients presenting with chest pain. Background knowledge about the patient, family doctors’ personal ideas and gut feeling are also important [37]. In the Primary Care level, medical practitioners use criteria that differ from secondary or tertiary care [38].

Helman refers eight subjective experiences in the process of becoming ill. One of them is the behavioral alterations in relation to others (eg, frequent conflicts with the couple) [39]. The interpretation and meaning that the individual attributes to the symptoms or discomforts are influenced by different variables such as personal previous experience with the symptom, family or significant other experiences, learned models, beliefs and social norms. Therefore, to become ill is a social process, and patients’ beliefs about symptoms are major influences on consultation and its consequences [40,41].

The first basic approach to transitions or turning points in Family Medicine is in the life cycle of individual and family. This cycle has implications for therapeutic work with families and individuals, whose problems are often associated with critical periods of change and transition in the families. The basics concepts of life cycle suggest an underground order of lifetime, where the individual, family, or illness exists only within a context that follows a basic sequence or not deployed. This basic sequence is repeated for successive generations over time [4,42-45].

It has been reported that death rates from coronary heart disease for persons aged 25years and over are higher for the divorced, widowed, or the never-married than for persons who are currently married [46]. Our findings suggest that the presence of children in the family could be a supportive factor so the patient shows a more moderate or “discreet” experience of symptoms.

The absence of children at home (“empty nest”: feeling of emptiness and loneliness not filled by other activities) and, perhaps, level factors of discord in the couple or familiar stress can promote the expression of symptoms more “ostentatious”, or anxious and peculiar by the patient.

Among men experiencing acute myocardial infarction with chest pain, being married was associated with significantly earlier presentation for care, a benefit that was not observed for married women [47]. Women below 60 years of age with coronary heart disease have relatively more pain in the neck, back and shoulders with concomitant vaso-vegetative symptoms, feelings of anxiety, fatigue, and dyspnoea in comparison with the classical chest pain syndrome that is more prevalent in men. [48]. Women are more likely to have had chronic undifferentiated symptoms prior to an acute episode [48-52]. Our study reproduces these results.

Also, it has been reported, a short-term elevated risk of first time myocardial infarction following broken partnership and a weaker long-term elevated risk, in both men and women [53]. Older adults’ spousal loss influences multiple dimensions of their health. At the end of the life cycle in males, myocardial infarction occurs most often in situations of family conflict (between the patient and the children, etc.), and myocardial infarction is often preceded by situations patient refusal by a loved one [5]. Denial, a natural defense mechanism, can be either an appropriate or an inappropriate response to anginal pain. In the elderly living alone, perhaps with anguish to enter the hospital and/or acceptance of the lifetime, can favour the denial of symptoms, showing be “stoic” [54]. To avoid pitfalls and facilitate bedside diagnosis of infarction, physicians should be aware of the different clinical presentations in the aged [55]. Patients older have no chest pain upon hospitalization; so many patients did not generally recognize the importance of their warning symptoms [56].

Among the limitations of our study are: 1) no personality factors, that may influence the results, were collected [57]; 2) no anxiety levels were evaluated; patients with high levels of anxiety have difficulty making decisions, and sometimes these are done against their own interests as an attempt to reduce fear, so you may deceive the doctor about important issues [23]; 3) possible limitations of the life cycle; the concept of family life cycle was developed focused on the Western nuclear family model, which in its pure form is not currently the most common, so, we can have families at different stages of the cycle at a time (for example, a “new” partner may be in a phase of dating or

courtship, but at the same time having to deal with the problems of a teenage son from a previous marriage). In those circumstances, each member of the family can experience differently the family life cycle; and 4) no diseases and co-morbidities were collected.

Some implications for future research are: 1) the approach of the course of life with the prospect of turning points or transitions can become a powerful organizing framework for the study of health, illness and mortality. A based transitions approach can be both a research tool, as a method for improving the holistic approach to issues of patient care and could be useful as an aid to understanding health behaviors related to familial risk [42,58]; 2) family health research is a type of research that takes the family as the unit of analysis to generate knowledge [4,59]; 3) the clinician should understand the different tasks within the life cycle of the patient; using the methodology of life story, and so the clinician could begin to understand the autobiography of the patient and can use the life cycle tasks as chapters in the history of life of each patient [60]; and 4) in clinical practice, family life cycle, which can be assessed by the genogram, and psychosocial risk factors which should be assessed by clinical interview or standardized questionnaires, could be evaluated about relevance with respect to quality of life and medical outcome the patient [12].

Conclusion

When an acute coronary syndrome occurs, the different stages of family life cycle may favour the formation of natural groups of patients showing differences in the presentation of symptoms.

Patients from 35 to >65 years without children at home experience symptoms somewhat peculiar or rare or ostentatious, and women over 65 do it with more anxiety. Patients from 35 to >65 with children at home experience symptoms as moderate or “not excessive” form, and the over 65’s tend to relate their symptoms to stressful events. Single elderly patients (over 65 years) experience symptoms as resigned or stoic.

The recognition of these types of patients that express a particular clinic, and which showing different shades in certain respects to the classic syndrome of chest pain, may be useful to family physicians for diagnosis, providing additional useful information to biologic factors risk, medical record and physical exploration, and so to form a working hypothesis to be validated with other research methods.

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