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Epidemiological Value of Continuity of Care in General Medicine (Part one of Two)

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Abstract

Despite professional recognition of the importance of continuity of care, there is little practical guidance for general practitioners on continuity of care, in regard to its epidemiological implications that are not even taken into consideration. This article, first part of two texts, is intended to reflect on fundamental epidemiological elements that are provided by continuity of care in general medicine, and its practical applications Some of these are: 1. Epidemiological efficiency of continuity of care (application of Bayes' theorem): it allows to evaluate at very low cost previous probabilities and increases the pretest probability; 2. Continuity of registration: a registry of patients with a specific disease can be useful not only as a basis for the calculation of prevalence or incidence rates, but also as a tool to ensure that certain patients receive the care they need; 3. Knowledge of numerators and denominators: it allows knowing the beginning or incidence of health problems; the beginning of preventive interventions (case finding); to know the prevalence; knowing the associated factors that may suggest causality; knowing the prognosis; knowing the evolution of the health problem (intermittent course, persistent course, worsening, evolution of the severity of symptoms, exacerbations, complications; etc.); knowing the process or trajectory of accumulation of diseases in people throughout life, and the factors associated with this phenomenon.

Keywords: Continuity of Care; Epidemiology; Community Medicine; General Practitioner; Disease; Diagnosis

Introduction

Continuity of care in the sense that a patient repeatedly consults with a general practitioner (GP), forming a therapeutic relationship, has been described as an essential feature and a characteristic that defines general medicine [1-6]. Although it can be seen from different perspectives, suggesting a hierarchy of dimensions from less to more complexity [7-11] in any case, GPs offer continuity; that is, they offer the follow-up of specific health problems and the follow-up of the person with the set of health problems that will affect him throughout his life. The benefits of continuity are multiple, from the decrease in patient mortality to the decrease in the costs of the health system, including important opportunities for epidemiological knowledge of health problems. Continuity of care between the doctor and the patient builds trust and allows the physician to use more productively the time available [12-13].

In general, relationship continuity is highly valued by patients and doctors, and the evidence suggests that it leads

to more satisfied patients and GPs, reduces costs and achieves better health outcomes. However, there are some risks and disadvantages that have raised concerns that the continuity of care and the relationship with a GP is increasingly difficult to achieve:

1. Recent developments, in particular the growing specialization and fragmentation of primary care services.
2. Changes in professional work patterns that forget to underline the special importance of continued care.
3. The emphasis on rapid access to medical services.

The continuity of care by the GP is relevant when a patient receives care from more than one doctor or provider. It refers to the processes involved in coordinating, integrating and personalizing care to provide quality service. The GP's clinical responsibility as a patient care coordinator includes helping patients understand and plan their treatment, successfully navigate unknown services and remain committed to their care. The good continuity of the relationship can contribute substantially to achieve this continuity of care [14].

Despite professional recognition of the importance of continuity of care, there is little practical guidance for general practitioners on building and maintaining good relationships with patients, and continuity of care is not monitored or encouraged in the same way as other aspects of good practices, such as access or prescription [15]. In addition, most of the important advances in the quality and content of health care have been made in hospital medicine, rather than in primary care. This lack of assessment of continuity of care is even greater in regard to its epidemiological implications that are not even taken into consideration.

In this scenario, this article, first part of two texts, and based on a chosen narrative review and the author's own experience, aims to reflect, conceptualize and synthesize the fundamental epidemiological elements that are provided by continuity of care in general medicine ,and its practical applications.

Discussion

The GP is the doctor to whom a patient resorts for the first time when he is ill or when he seeks personal health advice. In the community, an important characteristic of GP clinical care is its continuity for long periods of time; this builds a special relationship between GPs, patients and their families. GPs who get to know several members of the same family in the course of their practice are better able to use this knowledge of the family's health status, its resources, relationships and their perception of health, when family members they turn to them for diagnosis and treatment [16].

The Size and Nature of Continuity of Care

For most illnesses, in many health systems, the GP is the first point of contact in the health care system and he looks after a population whose age and sex composition is known. So, general medicine is a major source of information on health problems and their variation [17]. An adult, in 25 years of life, suffers on average 1 very serious disease, 20 serious, and about 200 less serious [18]. Over two-thirds of older individuals live with multiple chronic conditions [19].

The number of people who need some type of continued care is surprisingly high. And it will be even greater in relation to the aging trend of the population. Between 60-70 % of people report have at least one chronic health problem. Urinary incontinence, chronic pain, high blood pressure, diabetes mellitus, osteoarthritis, arthritis, epilepsy, cardiac arrhythmias, anxiety and depression, COPD, glaucoma, thyroid disorders, cancers, HIV, cirrhosis Migraine, multiple sclerosis, parkinson's disease, etc., are some examples. It is admitted that the prevalence of hypertension is 20-30%, that of musculoskeletal problems more than 20%, psychological problems more than 20%, alcoholism 1-2%, etc. Or that the incidence of thyroid disease is 2-3 new cases each year in each GP practice [20]. With an average frequency of 4 visits / year, for 2 reasons of consultation on average in each visit, and for 30 years of continuity in the same surgery of the GP throughout his professional life, for an average of 1000 patients who remain stable with the same GP in those 30 years, it results that the GP attends in his professional life an average of 250,000 consultations of continuous attention.

Balint, in his book "The doctor, his patient and the illness" [21] already described the doctor-patient relationship as a mutual business where both win. The work of GP therefore includes the use of prolonged contacts with the patient as opportunities to obtain information at the appropriate pace for each patient, and build a relationship of trust that can be used professionally.

The Epidemiological Approach in Continuity of Care

The population disease is a dynamic and cyclical process, so for its interpretation it is necessary not only to know, but also to apply the epidemiological approach, which consists of [22].

1. Observation of population health phenomena.
2. Quantification of population health phenomena.
3. Analysis of the frequency and distribution of phenomena and their determinants.
4. Definition of more appropriate courses of action.

This epidemiological approach of continuing care can be classified into a series of concepts, among which the following

can be pointed out (Table 1). In this article, first part of two, points 1 to 3 of TABLE 1 will be briefly commented.

Some Epidemiological Concepts that can be developed from the Continuity of Care Approach	
1	Epidemiological efficiency of continuity of care (application of Bayes' theorem)
2	Continued registration (the medical record in continuity of care)
3	Knowledge of numerators and denominators
4	Community diagnosis
5	Knowledge of the natural history of the disease
6	Obtaining epidemiological hypotheses
7	The possibilities of epidemiological studies from the data of continuity of care

Table 1: Some Epidemiological Concepts that can be developed from the Continuity of Care Approach.

Epidemiological Efficiency of Continuity of Care (Application of Bayes' Theorem): From an epidemiological point of view, the continuity of general medicine implies significant efficiency gains, since a substantial part of the medical time is dedicated to the diagnostic process. This diagnostic process can be conceptualized as a way to reduce initial suspicions sequentially through a hypothetical-deductive method, as Bayes' Theorem expresses. The doctor collects information (medical history, examination or several diagnostic tests) to review the initial suspicions and the probability assigned to them. New diagnostic information serves to review probabilities until it is more advantageous to stop the diagnostic process and proceed to treat / not to treat ("wait and see" included).

The good exercise of the GP, with a continuity duly embodied in the clinical history, allows evaluating at very low cost previous probabilities (living conditions, for example) and increases the pretest probability. The filter work increases the probability of diseases in the group of referred patients and therefore improves and justifies the more aggressive methods of hospital specialists [23].

Assume theoretically that GPs select patients well and the probability of disease in patients referred to hospital specialists rises from 1 to 10%. If we assume that these employ tests of 95% sensitivity and 90% specificity, the positive predictive value goes from 8.7 to 51.3% [24]. In a real example, in the Netherlands, regarding rectal hemorrhage, the prevalence of rectal and sigma cancer increased from 0.1% in the population to 2% in the GP consultation (due to the effect of personal and family filters) and 36% in the hospital specialist's office (due to the GP filter) [25]. That is, the prevalence was multiplied by 20 when the patient decided to consult his GP and by 18 when he decided to refer the patient to the hospital specialist. In total, the prevalence multiplied by 360, from 1 per thousand to 360 per thousand, this facilitates the work of focal specialist and compensates for the damage of its aggressive techniques [26].

Continuity of Registration (The Medical Record in Continuity of Care): The continuity of care to patients and the elaboration and maintenance of clinical histories in general medicine, supposes the collection of data and narrations of the life of people. These stories include the scripts of life, the courses of life, the threads that guide in some sense the lives of people. Narratives as a more clearly human manifestation, consists mainly of showing us life courses.

From the point of view of clinical psychology, the life scripts of medical records show us:

1. That which makes people feels bad: depression, anguish, fears, feelings of incapacity, failures, obsessions and the meaning that all this has in relation to a life; what makes people feel good.
2. The conditions in which people change.

Nothing that happens to a person is isolated from the rest of his life. The continuity of care and its registration allows the GP to know connections, relationships, and link, connect, chain, of facts with each other. Each medical history speaks of a world and the relationships with the world. The world is hidden in history, and partly becomes visible when the story unfolds. The clinical history in continued care becomes a procedure to recreate the past as a way of understanding the present; they are structures that help remember, understand the present and anticipate the future [27-30].

A registry of patients with a specific disease can be useful not only as a basis for the calculation of prevalence or incidence rates, but also as a tool to ensure that certain patients receive the care they need. A list or record of the total eligible population can be of great value not only for epidemiological planning and organizational purposes, but also for the identification of specific individuals who may require follow-up or care, such as the elderly with whom the GP not had contact for some time.

The information that can be collected includes the following:

1. Demographic information about the community or the population eligible for the service: the population size, its demographic characteristics, such as their age, sex and ethnic distribution, and their mobility. These data have obvious implications for service planning and provide the necessary denominators for measurement of morbidity and other rates. The registry of known pregnancies and births, deaths and movements of entry and exit may have immediate practical relevance.
2. Information on diseases and disabilities. The graphs showing the occurrence of selected acute diseases, using the technique developed by W. N. Pickles, a general practitioner in Yorkshire, England, provide a simple means of surveillance of infectious diseases [31]. Records of important long-term disorders, such as ischemic heart disease and cerebrovascular disease, and maps showing the distribution of home patients or patients with certain acute infections may also be useful.
3. Information on characteristics relevant to health, such as the growth and development of children and the blood pressure of the adult population.
4. Information on the use of services and their differential use by various community groups.
5. Information on behaviours relevant to health, such as cigarette smoking, family planning practices and compliance with medical advice.
6. Information on the presence of risk markers or risk factors known as a basis for the identification of vulnerable individuals and groups; so, "at risk" records can be useful.
7. Immediate report of deaths or other stressful events that may justify the adoption of crisis intervention procedures.
8. Information on the performance of activities by the GPs, such as screening tests, home visits, etc.
9. Information, often not quantifiable, about the interests and concerns of the community, your demand for services and your satisfaction with your medical care.

An analytical as well as descriptive approach can be used in clinical epidemiology, directing attention to the relationships between the variables. Information on the differential occurrence of a disease in different population groups, for example, can be useful both in the delimitation of vulnerable groups and as an indicator of the operational etiological processes in the community [32].

Knowledge of Numerators and Denominators

An epidemiological study of the differential distribution of particular health conditions and the factors that determine their distribution must include information on the characteristics of the "denominator" population, that is, the persons eligible to use the practice. And similar information should be available in the patient clinical records, which will provide "numerator" data. The minimum inclusions in the denominator and numerator information systems are sex and date of birth for all individuals in practice. Other desirable social and demographic data include occupation; education; family, kinship and ethnic group; religion; social class or socioeconomic status; locality of life; duration of stay in the area; and migration.

This situation, in the continuity of care, allows the GP:

1. Knowing the beginning or incidence of health problems (for example, asthma, which is often in childhood and in the young adult). Also, allows to the GP know the beginning of preventive interventions (case finding).
2. Knowing prevalence of diseases. For example, in asthma, this can be generally between 1-5% in children and between 2-5% in adults.
3. Knowing the associated factors that may suggest causality (such as obesity, stress, salt, alcohol and tobacco intake in high blood pressure).
4. Knowing the prognosis (for example in asthma, 70% of children with asthma are of a mild degree and with infrequent attacks and long remissions).
5. Knowing the evolution of the health problem (intermittent course, persistent course, worsening, evolution of the severity of symptoms, exacerbations, complications; psychological, family, work, economic impact, effect of the various treatments, including adverse reactions and pharmacological interactions , types of complementary tests requested).
6. Knowing the process or trajectory of accumulation of diseases in people throughout life, and the factors associated with this phenomenon: a) Causality, associations and linkages: through a path of common origin, or through a cortico -visceral pathway or psychosomatic, or through the accumulation of risk factors, or through genetic bases and biological linkages; b) Coincidences, seriality or synchronicity; c) Chance or random; and, d) Due to our own interventions to solve other previous problems (such as pharmacological iatrogenesis or surgical sequelae) [33,34].

On the other hand, it has been reported that there is a "power-law" phenomenon in health problems. Diseases are not uniformly distributed among the population of patients cared for in general medicine, but rather show a pattern of cumulative disadvantage; a small part of the population, practically 20%, accumulates almost 50% of bio-psycho-social problems. These problems seem to attract each other and to be added in the same people that suppose a small group of the population [35]. This distribution can be known by the GP through the data it collects in the continuous attention.

Conclusion

Given the clinical and epidemiological advantages of continuity of care, it is necessary to fully explore the use of epidemiology in the practice of GPs. Professional leaders must recognize the value of the continuity of the relationship, and this cannot be taken for granted, but GPs and epidemiologists must play a more active role to make it possible. The first principle in continued care is to start with people as they are and with the community as it is and maintain a long-term reflective relationship.

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