Co-morbidity and its challenges for quality of Primary care

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Co-morbidity is the coexistence of more than one unrelated health problem in individuals. Early studies of co-morbidity mainly addressed the occurrence of one type of problem with an already existing one (such as mental disorder in a person with somatic illness) but, more recently, the simultaneous occurrence of unrelated health problems is receiving attention because of its frequency, impact, and implications for health services. This phenomenon is sometimes known as multimorbidity but because the term co-morbidity is more common in the literature, this commentary uses it to refer to both.

Most patients have more than one health problem at the same time. As the frequency of illness rises with age, the percentage of people with multiple diagnoses increases with age. Nevertheless, the extent of co-morbidity is greater (according to the chance likelihood of more than one disease being present) in children.[1]

At least part of the reason for co-morbidity is due to the originally genetic concepts of pleiotropism, etiological heterogeneity, and penetrance. When any given risk for an illness carries risk for other illnesses as well, it is pleiotropic, e.g., an unhealthy environment is associated with increased likelihood of other diseases, not only one. When the same illness follows from exposure to any of several risk factors (e.g., the risk of hypertension is increased in the presence of smoking and/or obesity), etiological heterogeneity is occurring. When the same risks are associated with different likelihood of illness in different populations (e.g., the proportion of Japanese males who smoke is high, but it does not carry the same degree of risk of illness as it does in European males), it is known as a difference in penetrance. These three phenomena operate because the 'causes' of illness are multiple and interacting, and populations differing in degree of exposure to risks and in resilience to threats to health have different likelihoods of illness and multiple illnesses. Co-morbidity therefore is not distributed randomly in the population: studies have shown that more socially deprived populations have more exposures and more co-morbidity.

Co-morbidity is also increasing in frequency and magnitude over time because the rate of diagnosis of disease is rising over time. This is due to 'disease mongering' – a result of progressive lowering of thresholds for diagnosis as a result of the influence of disease-oriented specialists and pharmaceutical industry interest in creating new markets for their services and products.

The impact of co-morbidity is considerable. The greater the co-morbidity, the greater the costs of hospitalizations, hospitalizations for conditions that should be preventable by good primary care, and adverse event rates during hospitalizations. These increases are not linear but, rather, increase exponentially as the extent of co-morbidity rises. The use of specialist services is greater when there is more co-morbidity, both in younger people and, espe-

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cially, in older people.[2] Increases in costs of care are a result of degrees of co-morbidity rather than the particular type of illness or its chronicity.[3]

Despite the frequency and impact of co-morbidity, the focus on clinical care continues to be on diseases. The assumption that diseases capture the essence of illness is erroneous. When the focus is on particular diseases, people with symptoms or signs that cannot be attributed to a specific diagnosis are shortchanged, because there is no incentive to spend time and effort on them. Co-morbidity is likely to be present in populations in randomized controlled clinical trials although those conducting the trials are unaware of it. Perhaps this explains why the variability in response to the interventions is so great in these trials. Adherence to disease--oriented guidelines for medication therapy based on these trials predisposes to polypharmacy when people have other conditions, with an increase in the likelihood of adverse effects.[4] The well-described limitation of guidelines when other diseases are present[5] has not stopped the proliferation of disease--oriented, processes-of-care-dominated approaches to quality of care assessments. Payment for performance, as a means of improving quality of primary care, should be based on scientific evidence of relevance to primary care practice, including extent of co-morbidity.

In view of the high frequency and impact of co-morbidity and its variability in different populations, co-morbidity should be ascertained and taken into consideration in characterizing different primary care practices. Practices caring for populations with greater co-morbidity need more resources. Co-morbidity can be measured and characterized. One particular tool, the Johns Hopkins ACG system,[2] was uniquely designed to facilitate such an effort. Patients and populations can be described according to the mix of types of all conditions (including signs and symptoms as well as all types of diagnoses) in any given time period, in a way that has implications for the need for the different extent and types of health resources. The likelihood of persistence of morbidity and its command on health services resources is the underlying basis for characterizing individual diseases into types; different combinations of these different types reflect differences in morbidity burden, which represents the degree of illness better than individual diagnoses.[2]

Co-morbidity can be counted and characterized. There is every reason to do so – in the interests of improving the recognition of people's health problems, their interaction, and their appropriate management.

Declaration of competing interests: Dr. Starfield is the co-developer of the ACG system. The Johns Hopkins University holds the copyright for the software and receives royalties from its sale for commercial purposes. The system is available for use by researchers.

REFERÊNCIAS BIBLIOGRÁFICAS

1. van den Akker M, Buntinx F, Metsemakers JF, Roos S, Knottnerus JA. Multimorbidity in general practice: prevalence, incidence, and determinants of co-occurring chronic and recurrent diseases. J Clin Epidemiol 1998 May; 51 (5): 367-75.

2. Starfield B. Threads and yarns: weaving the tapestry of comorbidity. Ann Fam Med 2006 Mar-Apr; 4 (2): 101-3.

3. Broemeling AM, Watson D, Black C. Chronic conditions and co-morbidity among residents of British Columbia. Vancouver, BC: University of British Columbia; 2005.

4. Tinetti ME, Fried T. The end of the disease era. Am J Med 2004 Feb 1; 116 (3): 179-85.

5. Boyd CM, Darer J, Boult C, Fried LP, Boult L, Wu AW. Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance. JAMA 2005 Aug 10;294(6):716-24.

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