References


The fine art of prognostication

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Prognostication has always been essential to the art of medicine, yet in modern practice physicians tend to avoid explicit discussion of prognosis. Rapid developments in treatment have changed the expectations of both physician and patient. Disease is to be eradicated and death is usually perceived as failure\[1\]. The priority in the clinical encounter is on making a diagnosis and instituting therapy.

The increasing emphasis on the right of a patient to be involved in decisions about their care clearly requires physicians to spell out various possible courses of action and the likely results of these actions, and therefore must involve physicians in generating and communicating ‘predictions’\[2\].

Prognostication is generally thought to be more of an art and less of a science than diagnosis but the level of discrimination of long-term forecasts compares favourably with the levels of discrimination of some diagnostic judgements that are considered worthy of support — such as screening for cervical or breast cancer\[3\]. However, physicians dislike and avoid making the sort of precise prognoses that patients often seem to want; physicians may deem that prognostication is not helpful, is misleading, or is even harmful to their patients\[2,4\]. Physicians believe that patients hold them accountable for errors in prognostication to a much greater extent than their peers do, and find the process of prognostication difficult and unsettling\[3\]. Yet studies show that physicians are called upon to prognosticate frequently in their day-to-day practice. Avoiding discussion of prognosis can make the patient feel abandoned and leave physicians feeling estranged. The evolving professional and societal consensus is that prognostic data should be shared in the context of a patient-physician relationship based on trust\[4\].

The paper by Muntwyler and colleagues in this issue\[5\] highlights some important points about the prognosis of patients with heart failure: patients selected from 71 primary care offices throughout Switzerland as part of the IMPROVEMENT Study\[6\] died at three times the rate of their age-matched peers, with a 12-month mortality of 12·6%. The clinical features independently associated with increased mortality were worse NYHA class, recent stay in hospital for heart disease, higher serum creatinine concentration, lower systolic blood pressure, higher heart rate, more advanced age and female gender — although the latter may be confounded by inclusion of more women than men with an incorrect diagnosis of heart failure. These findings are in line with recent data from population-based studies of both prevalent and incident cases of heart failure from the Netherlands\[7\] and U.K.\[8\]. However, an interesting feature of this study is that primary care physicians were asked to estimate the likely 1-year mortality of their patients. The primary care physicians were clearly aware of the relatively high mortality of patients with heart failure, but overestimated the mortality by a factor of two. This effect was particularly marked in patients at relatively low risk of death: those with milder symptoms and no recent hospital inpatient admission. The authors do not tell us whether there were any doctor characteristics that identified those physicians most likely to overestimate...
the mortality risk. However, these findings are important because there is almost no information about how well physicians actually perform in this aspect of practice, although there is an extensive and growing literature about the factors that have prognostic significance in heart failure[9].

The Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment (SUPPORT) provides some insights. Subjective prognostic estimates of the physicians caring for seriously ill hospitalized patients — including those hospitalized with decompensated heart failure — were compared with actual survival in a multi-centre study based in the U.S.A. A prognostic model was developed and validated. The physicians made overly pessimistic predictions of survival, particularly when the probability of survival was thought to be low[4]. The prognostic models were no better than physician assessment, but when both physician assessment and the model were combined the accuracy increased. A study based in an ICU in the U.S.A reported that the perception of how patients will survive may differ from one group of doctors to another, with more experienced doctors generally having a better appreciation of the likely survival[10]. Even so, a physician is likely to consider the prognosis of the patient in front of him or her as somehow better (or worse) than another doctor’s patient with the same clinical characteristics (‘ego’ or ‘reverse ego’ bias). Undoubtedly, the process by which physicians assess the prognosis of a patient is complex.

A survey of knowledge and attitudes of family physicians, general internists and cardiologists in the U.S.A. reported that many generalists had inflated perceptions of their patient’s cardiovascular risk without treatment, and of the benefits of risk-modifying medical treatment[11]. This attitude resonates with the authors’ conclusions from a survey of primary care physicians attitudes across Europe (Euro-HF): that these doctors have an overinflated idea of the risks and underestimate the benefits of therapy for heart failure[13]. A similar picture emerges for patients with cancer; non-specialists are many times more likely to make over-pessimistic predictions than specialists, although in general physicians overestimate the survival of patients with terminal cancer[13]. Doctors who had been in practice for overestimate the survival of patients with terminal cancer more than specialists, although in general physicians were more likely to make over-pessimistic predictions for patients with cancer; non-specialists are many times more likely to make over-pessimistic predictions than specialists, although in general physicians overestimate the survival of patients with terminal cancer[13].

Does the overestimation of mortality risk matter? Almost certainly. As Muntwyler and colleagues suggest[3], an overinflated estimate of the risk of mortality for an individual may make a physician more likely to withhold important diagnostic steps and therapies for the condition or concomitant health conditions and risk factors. The accuracy of prognostication is also crucial in assisting patients and their families make the best possible personal plans for the future[13,14]. Inaccurate estimates may distort a patient’s choice of therapy and the trade-off they are willing to make between quality and quantity of life, an important consideration particularly for very elderly patients with heart failure. Several studies suggest that the longer a patient feels they may live, and the better the outcome of an intervention is perceived to be, the more likely it is that the patient will choose life-extending therapy (even with associated toxicity) over comfort care[15–17]. Importantly, patients differ markedly in their attitudes towards the potential trade-off between quality and quantity of life[14] — an issue that has long been considered important in oncology and one that is now achieving greater prominence in heart failure[18,19]. If a physician does not communicate prognostic information to a patient they may be denying that patient the opportunity to make fully informed choices about their care. It is comforting to know that most patients do not need a precise understanding of their prognoses to alter their treatment preferences. Studies suggest that merely telling a patient that they have at least a 10% probability of not surviving 6 months may make them substantially change their treatment preferences[15].

What can be done to improve the situation? All physicians who see patients with heart failure, whether they be specialists or general practitioners, should pay more attention to the role of prognostication in their clinical practice. More research in this important area is needed. Better prognostic models are required: such models need to be simple but accurate, precise and clearly grade an individual’s risk of death. The goal of prognostication is to predict the future and it may be impossible to do this perfectly because the course of the illness may depend on random events that have yet to occur. Death may be sudden and intrinsically more unpredictable in patients with cardiovascular disease than in those with cancer. However, the present does provide clues to the future, which we all accept in our management of cardiovascular risk factors in the primary and secondary prevention of coronary heart disease. More empathetic, more frequent, and more responsive communication between physicians and patients about prognosis — and not just diagnosis and treatment — is long overdue.

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The quality of life in chronic disease — heart failure is as bad as it gets

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Patients with chronic heart failure are likely to make ever-increasing demands on doctors' time over the next ten years as both the incidence and prevalence of the disease are predicted to rise substantially[1], defying the general downward trend reported in other cardiovascular disorders. An ageing population and an increasing number of survivors of a first heart attack will swell the ranks of existing patients[2].

Newly diagnosed heart failure confers an adverse prognosis as population-based observational studies report mortality rates of one in five within 1 month and one in three within 1 year[3]. These mortality rates are greater than those in clinical trial studies such as SOLVD[4,5] whose recruits may not be representative of the general population due to restrictive selection inherent in trial design.

The appalling mortality of congestive cardiac failure is well known to cardiologists, physicians and family doctors but appears to have escaped the attention of newspaper feature writers — less common illnesses such as lung and breast cancer, and even rarities such as Ondine's curse, may make headlines while deaths from heart failure pass without reaching public awareness.

The individual patient, however, is well aware of the burden of surviving heart failure which can be dire. It is not sufficient, therefore, to offer a patient improved survival and add years to life unless at the same time treatment also adds life to years. Heart failure adversely affects quality of life because of changes in lungs, circulation and skeletal muscle which often results in recurrent hospital admissions due to symptoms of breathlessness, peripheral oedema and overwhelming fatigue, all of which interfere with day-to-day activities. The management of...

References