Comorbidity
Cancer Outcomes Conference 2013

Robin Crawford
NCIN Comorbidity Group

Why Comorbidity

- Outcomes
- Treatment options
- Measurement
  - Charlson: useful epidemiology
  - ACE 27: predictive value
- Informed choice for patient and clinician

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A NEW METHOD OF CLASSIFYING PROGNOSTIC COMORBIDITY IN LONGITUDINAL STUDIES: DEVELOPMENT AND VALIDATION

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Abstract—The objective of this study was to develop a prospectively applicable method for classifying comorbid conditions which might alter the risk of mortality for use in longitudinal studies. A weighted index that takes into account the number and the seriousness of comorbid disease was developed in a cohort of 559 medical patients. The 1-yr mortality rates for the different scores were : "0", 12% (181); "1–2", 26% (225); "3–4", 52% (71); and " ⩾ 5", 85% (82). The index was tested for its ability to predict risk of death from comorbid disease in the second cohort of 685 patients during a 10-yr follow-up. The percent of patients who died of comorbid disease for the different scores were: "0", 8% (588); "1", 25% (54); "2", 48% (25); " ⩾ 3", 59% (18). With each increased level of the comorbidity index, there were stepwise increases in the cumulative mortality attributable to comorbid disease (log rank $\chi^2 = 165$; $p < 0.0001$). In this longer follow-up, age was also a predictor of mortality ($p < 0.001$). The new index performed similarly to a previous system devised by Kaplan and Feinstein. The method of classifying comorbidity provides a simple, readily applicable and valid method of estimating risk of death from comorbid disease for use in longitudinal studies. Further work in larger populations is still required to refine the approach because the number of patients with any given condition in this study was relatively small.

Adult Comorbidity Evaluation 27

ORIGINAL CONTRIBUTION

Prognostic Importance of Comorbidity in a Hospital-Based Cancer Registry

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Context Patients with cancer often have other medical ailments, referred to as comorbidity. Comorbidity may impact treatment decision-making, prognosis, and quality of care assessment.

Objective To assess whether comorbidity information can provide important prognostic information in a hospital-based cancer registry.

Design, Setting, and Participants An observational prospective cohort study using comorbidity data collected by trained hospital-based cancer registrars. Comorbidity was obtained through medical record review using the Adult Comorbidity Evaluation 27, a validated chart-based comorbidity instrument. A total of 17 712 patients receiving care between January 1, 1995, and January 31, 2001, for the primary diagnosis of new cancer of the prostate, lung (nonsmall cell), breast, digestive system, gynecological, urinary system, or head and neck were included.

Main Outcome Measure Duration in months of overall survival.

Results A total of 19 268 patients were included in the study; median duration of follow-up was 31 months. Of these patients, 1556 (8.0%) were excluded due to missing or unknown data. Severity of comorbidity strongly influenced survival in a dose-dependent fashion and the impact of comorbidity was independent of cancer stage. Compared with patients without comorbidity, the adjusted hazard ratio associated with mild comorbidity was 1.21 (95% confidence interval [CI], 1.13-1.30), moderate comorbidity was 1.86 (95% CI, 1.73-2.00), and severe comorbidity was 2.56 (95% CI, 2.35-2.81). Adjusted Kaplan-Meier survival curves revealed that at any point in time the patients with more severe levels of comorbidity had worse survival (partial χ^2 due to comorbidity, 523.54; $P<.001$). Model discrimination ranged from 0.71 for head and neck to 0.86 for prostate cancers.

Conclusions Comorbidity is an important independent prognostic factor for patients with cancer. The inclusion of comorbidity in hospital-based cancer registries will increase the value and use of observational research.

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FOR MORE THAN 40 YEARS, CANcer patients have been staged by the size of their tumor while how sick they are from the tumor and other medical conditions were ignored. The present system of cancer classification does not consider the important patient-based prognostic factors, such as the general health of the patient, defined as the number and pathophysiological severity of coexisting diseases, illnesses, or conditions.[1] These conditions and diseases, which exist before cancer diagnosis and are not adverse effects of cancer treatment, are generally referred to as comorbidities.[2] While a routine consideration in selecting treatment and clinical decision-making, comorbidity is generally not considered in the design of cancer data

Frailty: Risk assessment?

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Review article

The frailty dilemma. Review of the predictive accuracy of major frailty scores

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ABSTRACT

Background: To identify frail elderly individuals, several index or scoring systems have been developed for research purposes. The practical value of these scores for screening and diagnostic use is uncertain.
Aim: The available scoring systems were reviewed to determine whether they can be used in daily practice.
Methods: Literature study on relevant test instruments developed for the detection of frailty on the basis of theoretical views on the frailty concept. Data on sensitivity and specificity and predictive values were extracted.
Results: Several (n = 6) frailty scores were described with respect to their value as a screening or diagnostic test. Outcome of the selected test instruments is presented as a risk of negative health outcome when a test is positive. The reported AUCs of ROCs varied from 0.55 for functional decline in people admitted to an accident and emergency department to 0.87 for prediction of mortality on the basis of a co-morbidity score. As the prevalence of frailty and resulting negative health outcomes in published reports was low (5–41%), presented sensitivity and specificity values lead to low positive predictive values (6–49%) but reasonable negative predictive values (73–96%).
Conclusions: As the number of false positive values of most available tests is substantial, these frailty scores are of limited value for both screening and diagnostic purposes in daily practice. As diagnostic instruments they can best be used to exclude frailty. The false-positive rate of currently available tests is too high to allow major decisions on medical care to be made on the basis of a positive test.

Five year % overall survival (95% CI)

	Comorbidity	
Cancer site	No	Yes
All gynaecological	55.0 (54.6,55.3)	34.7 (33.8,35.6) *(63.1%)†*
Cervix	66.3 (65.5,67.0)	32.8 (30.3,35.2) *(49.5%)†*
Endometrium	70.2 (69.7,70.2)	52.0 (50.3,53.6) *(74.1%)†*
Ovary	37.9 (37.4,38.4)	22.7 (21.5,24.0) *(60.0%)†*

†Survival of comorbid cases as a percentage of non-comorbid

Probability of surgical treatment for all gynaecological cancers by site (adjusted for stage and grade): Stage 1-4 cases only

	Odds ratio by site		
Factor	Cervix	Endometrium	Ovary
Age *(per year)*	0.97 ***	0.99 ***	0.96 ***
Comorbidity	0.92 *(NS)*	0.65 ***	0.80 ***
Deprivation Q2	1.06 *(NS)*	1.06 *(NS)*	0.88 *
Deprivation Q3	1.09 *(NS)*	0.99 *(NS)*	0.88 *
Deprivation Q4	0.98 *(NS)*	0.98 *(NS)*	0.85 *
Deprivation Q5	0.72 **	0.76 **	0.86 *

*(NS)=Not significant, *=P<.05, **=P<.01, *** P<0.001*

Programme

11:15 – 11:30

Simplifying the measurement of co-morbidities and their influence on chemotherapy toxicity Dr Raj Sinha, Brighton

11:30 – 11:45

A scalable electronic system for collecting co-morbidity data in cancer outpatient clinics Dr Penny Wright, Leeds

11:45 – 12:00

Derivation of a Charlson co-morbidity index from routine HES data Carolynn Gildea , Public Health England (East Midlands)

12:00 – 12:15

What is frailty and why it is important Dr Tony Moran Public Health England (North West)