



Original Research

Predicting early death in older adults with cancer



Rabia Boulahssass^{a,b,*}, Sebastien Gonfrier^a, Jean -Marc Ferrero^{c,d},
 Marine Sanchez^a, Véronique Mari^d, Olivier Moranne^{e,f},
 Cyrielle Rambaud^a, Francine Auben^a, Jean -Michel Hannoun levi^{c,d},
 Jean -Marc Bereder^g, Isabelle Bereder^h, Patrick Baque^{c,i},
 Jean Michel Turpin^a, Anne-Claire Frin^j, Delphine Ouvrier^j,
 Delphine Borchiellini^d, Remy Largillier^k, Guillaume Sacco^{c,h,l},
 Jerome Delotte^{c,m}, Cyprien Arlaud^h, Daniel Benchimol^{c,g},
 Matthieu Durand^{c,n}, Ludovic Evesque^d, Abakar Mahamat^o,
 Gilles Poissonnet^p, Jérôme Mouroux^{c,q}, Jérôme Barriere^r,
 Emmanuel Benizri^{c,h}, Thierry Piche^{c,j}, Joel Guigay^{b,c,d}, Eric Francois^{a,d},
 Olivier Guerin^{a,b,c}

^a Geriatric Coordination Unit for Geriatric Oncology (UCOG) PACA Est CHU de NICE, France

^b FHU ONCOAGE; Nice, France

^c University of Nice Sophia Antipolis, France

^d Department of Medical Oncology, Lacassagne Center; Nice, France

^e Department of Nephrology, Hopital Caremeau Nimes, France

^f Institut Universitaire de Recherche Clinique - EA2415 - Epidémiologie, Biostatistiques et Santé Publique/University of Montpellier; Nice, France

^g Department of Surgical Digestive Oncology, CHU de Nice; Nice, France

^h Geriatric Department CHU de NICE, France

ⁱ University of Nice Sophia Antipolis, Emergency Surgery Unit, CHU de Nice; Nice, France

^j Unit of Medical Oncology, Department of Gastroenterology, CHU Nice, Nice, France

^k Cancer Center: Centre Azuréen de Cancérologie; Mougins, France

^l CoBtek, France

^m Department of Obstetrics and Gynecology, Reproduction and Fetal Medicine, CHU de Nice; Nice, France

Abbreviation: PS, performance status.

* Corresponding author: Unité de Coordination en Oncogériatrie UCOG PACA Est, Hôpital de Cimiez, CHU de Nice, 4 Avenue Reine Victoria 06000 Nice France.

E-mail addresses: boulahssass.r@chu-nice.fr (R. Boulahssass), gonfrier.s@chu-nice.fr (S. Gonfrier), jean-marc.ferrero@nice.unicancer.fr (J.-M. Ferrero), sanchez.m@chu-nice.fr (M. Sanchez), veronique.mari@nice.unicancer.fr (V. Mari), Olivier.MORANNE@chu-nimes.fr (O. Moranne), rambaud-collet.c@chu-nice.fr (C. Rambaud), auben.f@gmail.com (F. Auben), jean-michel.hannoun-levi@nice.unicancer.fr (J.-M. Hannoun levi), bereder.jm@chu-nice.fr (J.-M. Bereder), bereder.i@chu-nice.fr (I. Bereder), baque.p@chu-nice.fr (P. Baque), turpin.jm@chu-nice.fr (J.M. Turpin), frin.ac@chu-nice.fr (A.-C. Frin), ouvrier.d@chu-nice.fr (D. Ouvrier), delphine.borchiellini@nice.unicancer.fr (D. Borchiellini), r.largillier@gmail.com (R. Largillier), sacco.g@chu-nice.fr (G. Sacco), delotte.j@chu-nice.fr (J. Delotte), arlaud.c@chu-nice.fr (C. Arlaud), danielbe3@clalit.org.il (D. Benchimol), durand.m@chu-nice.fr (M. Durand), ludovic.evesque@nice.unicancer.fr (L. Evesque), a.mahamat@tzanck.org (A. Mahamat), gilles.poissonnet@nice.unicancer.fr (G. Poissonnet), mouroux.j@chu-nice.fr (J. Mouroux), drbarriere@orange.fr (J. Barriere), benizri.e@chu-nice.fr (E. Benizri), piche.t@chu-nice.fr (T. Piche), joel.guigay@nice.unicancer.fr (J. Guigay), eric.francois@nice.unicancer.fr (E. Francois), olivier.guerin@nice.unicancer.fr (O. Guerin).

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ⁿ Department of Urology, CHU de Nice, University of Nice Sophia-Antipolis; Nice, France

^o Tzanck Clinic, Saint Laurent du Var, France

^p Department of Surgical Oncology, Lacassagne Center; Nice, France

^q Department of Thoracic and Cardiovascular Surgery, Hopital Pasteur, CHU Nice, Nice, France

^r Department of Medical Oncology: Clinic Saint Jean; Cagnes sur Mer France

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KEYWORDS

Prediction of death;
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Abstract Background: Predicting early death after a comprehensive geriatric assessment (CGA) is very difficult in clinical practice. The aim of this study was to develop a scoring system to estimate risk of death at 100 days in elderly cancer patients to assist the therapeutic decision.

Methods: This was a multicentric, prospective cohort study approved by an ethics committee. Elderly cancer patients aged older than 70 years were enrolled before the final therapeutic decision. A standardised CGA was made before the treatment decision at baseline. Within 100 days, event (death), oncologic and geriatric data were collected. Multivariate logistic regression was used to select the risk factors for the overall population. Score points were assigned to each risk factor using the β coefficient. Internal validation was performed by a bootstrap method. Calibration was assessed with the Hosmer–Lemeshow goodness of fit test and accuracy with the mean c-statistic.

Findings: One thousand fifty patients (mean age: 82 years) joined the study from April 2012 to December 2014. The independent predictors were metastatic cancers (odds ratio [OR] 2.5; 95% confidence interval [CI], [1.7–3.5] $p < 0.001$); gait speed < 0.8 m/s (OR 2.1; 95% CI [1.3–3.3] $p = 0.001$); Mini Nutritional Assessment (MNA) < 17 (OR 8; 95% CI; [3.7–17.3] $p < 0.001$), MNA ≤ 23.5 and ≥ 17 (OR 4.4; 95% CI, [2.1–9.1] $p < 0.001$); performance status (PS) > 2 (OR 1.7; 95% CI, [1.1–2.6] $p = 0.015$) and cancers other than breast cancer (OR 4; 95% CI, [2.1–7.9] $p < 0.001$). We attributed 4 points for MNA < 17 , 3 points for MNA between ≤ 23.5 and ≥ 17 , 2 points for metastatic cancers, 1 point for gait speed < 0.8 m/s, 1 point for PS > 2 and 3 points for cancers other than breast cancer. The risk of death at 100 days was 4% for 0 to 6 points, 24% for 7 to 8 points, 39% for 9 to 10 points and 67% for 11 points.

Interpretation: To our knowledge, this is the first score which estimates early death in elderly cancer patients. The system could assist in the treatment decision for elderly cancer patients. © 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Life expectancy is increasing in France and worldwide. Cancer is significantly associated with ageing. Hence, the proportion of elderly cancer patients is rising. Seventy percent of cancer deaths occur in patients aged older than 70 years [1,2]. Nevertheless, despite this ‘demographic tsunami’, elderly patients are under-represented in clinical studies [3].

Over the last decade throughout the world, the partnership between oncologists and geriatricians has improved elderly patient care by developing the use of specific tools for frailty screening [4–6] and for predicting toxicity of cancer treatments [7,8].

Given the significant heterogeneity among elderly patients, the International Society of Geriatric Oncology (SIOG) recommends practitioners to perform a comprehensive geriatric assessment (CGA) to profile

patient frailty levels with a view to optimise therapeutic decisions in geriatric oncology but also to help estimate life expectancy [9].

Moreover, overall survival is often overestimated by clinicians and can sometimes lead to overtreatment [10].

To our knowledge, no scoring system predicting early death in elderly cancer patients is available in the literature. Furthermore, validated risk-of-mortality scores are not dedicated to early death and elderly cancer patients. Some scores assess the risk of death at 1 year and 3 and 4 years [11–13].

It is important to note that these series analysed only some of the different domains proposed by the CGA and younger patients were included in several of them. For example, regarding early death, only Barbot’s score [14] assesses the risk of death in advanced solid tumours at 2 months in hospitalised patients. However, this system is not dedicated to elderly patients.

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