Soins intensifs et urgences oncologiques

Objectifs généraux du cours

1. Familiariser l'élève-infirmièr(e) avec le patient cancéreux admis en unité de soins intensifs ou consultant aux urgences
2. Connaître les complications rencontrées et les aspects particuliers de l'abord thérapeutique

Objectifs spécifiques du cours

- Donner une formation suffisante pour permettre à l'infirmièr(e) "SIAMU" de pouvoir s'engager sans difficultés majeures dans une unité de soins intensifs (ou en service d'urgence) traitant régulièrement des patients admis pour une complication d'un cancer ou de son traitement.

Institut Jules Bordet et soins intensifs

- 1980: création d'une USI dans le service de médecine

  nom = ASTI

  (administration et surveillance de traitements intensifs)
- début années 80: règles érigées par le comité d'éthique sur les limites de la réanimation (NT, NTBR)
- fin années 80 : construction d'un plateau de soins intensifs (ouverture en 1992 avec séance académique)
- 1996 : création de la clinique des soins intensifs oncologiques
- 2001 : ASTI devient la fonction soins intensifs de l'IJB
- 2004 : devient unité de soins intensifs médico-chirurgicaux
- 2010 : devient service des soins intensifs et urgences oncologiques
- 2021 : déménagement dans le nouveau IJB

Contenu synthétique

1. Le pronostic du patient cancéreux en réanimation
2. Les indications de soins intensifs
3. L'immunodépression et ses complications
4. L'aplasie médullaire
5. Le greffé de moelle osseuse en réanimation
6. Les syndromes obstructifs tumoraux
7. Les complications hémodynamiques
8. Les complications cardiaques
9. Les complications hépatiques
10. Les complications de l'appareil urinaire
11. Les complications hématologiques
12. Les complications neurologiques
13. Les complications métaboliques
14. L'insuffisance respiratoire aiguë
15. La ventilation mécanique

Sources d'information

www.oncorea.com

- Livre : **Complications sévères chez le patient cancéreux**
- Diapositives : **Cours sur les soins intensifs oncologiques**

Modalités d'évaluation

Examen écrit (questions ouvertes)

Le pronostic du patient cancéreux en réanimation

Ecthyma gangrenosum

Quelle attitude avoir ?

1. Ne pas être biaisé

Decisions about Resuscitation: Inequities among Patients with Different Diseases but Similar Prognoses

Robert M. Wachter, MD; John M. Luce, MD; Norman Hearst, MD, MPH; and Bernard Lo, MD

Annals of Internal Medicine. 1989;**111**:525-532.

Table 1. *Estimated Prognoses for Patients in the Four Diagnostic Groups Based on a Review of the Literature*

Disease	Reference	Estimated Survival, %	
		At 1 year	At 5 years
The acquired immunodeficiency syndrome	22-25	40 to 50	5 to 10
Unresectable non-small-cell lung cancer	26,27	25 to 35	3 to 5
Cirrhosis (history of esophageal varices)	28	30 to 40	5 to 10
Congestive heart failure (severe, with history of coronary disease)	29-33	50 to 60	5 to 10

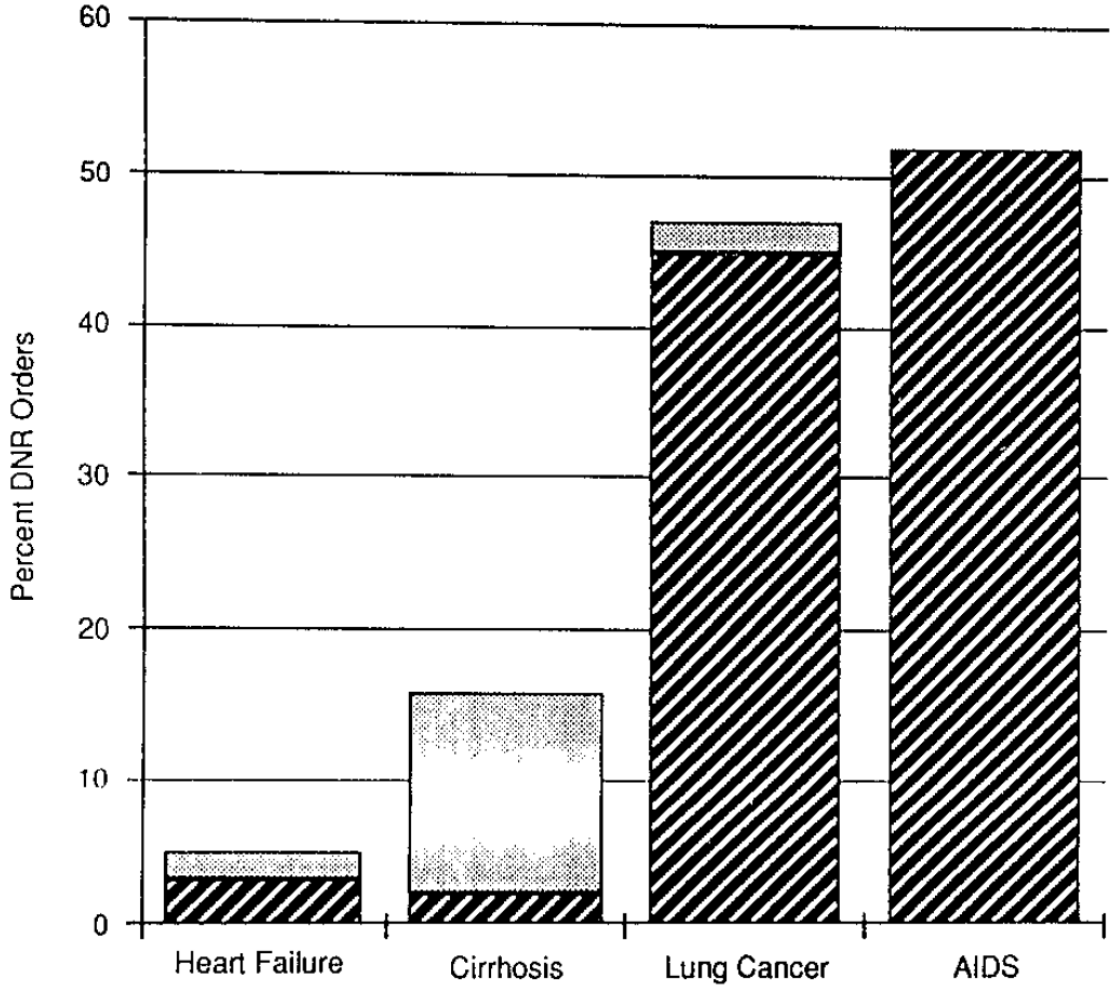

Figure 1. Frequency of DNR orders among patients in the four diagnostic groups. The hatched area indicates the percentage of patients whose DNR orders were written without a major in-hospital precipitant, and the shaded area indicates the percentage of patients whose DNR orders followed a major in-hospital precipitant.

2. Considérer le projet thérapeutique antinéoplasique

Not-for-resuscitation orders in cancer patients — principles of decision-making

Ian E Haines, John Zalcberg and John D Buchanan

Le stade fonctionnel du cancer
(phase selon le projet thérapeutique)

- Stade I: diagnostic
- Stade II: traitement à visée curative
- Stade III: traitement à visée de contrôle
- Stade IV: stade pivot
- Stade V: soins palliatifs

Med J Aust 153: 225; 1990

3. Considérer la complication

Scoring systems in cancer patients admitted for an acute complication in a medical intensive care unit

Jean-Paul Sculier, MD, PhD; Marianne Paesmans, MSc; Eveline Markiewicz, RN; Thierry Berghmans, MD

Objective: To validate and compare two severity scoring systems, the Acute Physiology and Chronic Health Evaluation (APACHE) II and Simplified Acute Physiology Score (SAPS) II and to determine their prognostic value for mortality during the hospital stay and after discharge in a specific group of cancer patients admitted to intensive care unit (ICU) for an acute medical complication.

Design: Prospective cohort study.

Setting: The medical ICU of a European cancer hospital.

Subjects: A total of 261 consecutive cancer patients admitted to ICU for an acute medical complication.

Measurements: Variables included into the APACHE II and SAPS II scores, as well as characteristics of the cancer, were collected during the first 24 hrs of the ICU stay. Hospital and in-ICU mortalities, overall survival, and survival after day 30 were measured.

Results: Observed hospital and ICU mortalities were 33% and 23%. Median survival time was 94 days and 1-yr survival rate was 23%. The mean predicted risk of death was 26.5% with APACHE II and 26.1% with SAPS II. Correlation between both systems was excellent. Calibration for mortality prediction ability of both scoring systems was similar. Discrimination between survivors and nonsurvivors was superior with SAPS II according to the area under the receiver operating characteristic curve but was better with APACHE II for survivors using thresholds minimizing the overall misclassification rates. Multivariate prognostic analysis showed that the scoring systems were the only significant factors for hospital and in-ICU mortalities, whereas characteristics related to the cancer (extent, phase) were the factors predicting survival after discharge.

Conclusion: The prognosis of cancer patients admitted to ICU for a medical problem is first determined by the acute physiologic changes induced by the complication, as evaluated by the severity scores. There is no major difference between the two assessed scoring systems. They are, however, not accurate enough to be used in the routine management of these patients. After recovery from complications, characteristics related to the neoplastic disease, however, retrieve their independent influence on the further survival. (Crit Care Med 2000; 28:2786–2792)

KEY WORDS: scoring; cancer; critical care; neoplasm; Acute Physiology and Chronic Health Evaluation II; Simplified Acute Physiology Score II

Table 1. Principal patient characteristics

	No. of Patients	%
Total number of patients	261	100
Median age (yrs)	63	—
Range	15–86	—
Type of cancer		
Hematologic	61	23
Lymphoma	17	7
Acute leukemia	12	5
Chronic leukemia	8	3
Myeloma	8	3
Myelodysplastic syndromes	14	5
Other	2	1
Solid tumors	200	77
Organ		
Lung cancer	67	23
Breast cancer	41	20
Head and neck cancer	18	9
Brain tumor	16	8
Digestive cancer	14	7
Gynecologic cancer	10	5
Other	34	17
Extent		
Locoregional	65	33
Metastatic	124	62
Unknown	11	6
Neoplastic disease phase		
Diagnostic	17	7
Curative	63	24
Controllable	143	55
Pivotal	35	13
Palliative	3	1
Cancer status		
Induction treatment	110	42
Complete remission		
Off therapy	29	11
Under therapy	6	2
Partial remission	23	9
No change	8	3
Progression	69	26
Unknown	22	8
Causes of admission		
Cardiac complications	73	28
Respiratory complications	64	25
Hematologic and infections complications	54	21
Metabolic complications	34	13
Neurologic complications	31	12
Digestive complications	15	6

—, not applicable.

L'IGS II

SCORE I.G.S. II

VARIABLE/POINTS	26	13	12	11	9	7	6	5	4	3	2	0	1	2	3	4	6	7	8	9	10	12	15	16	17	18
Age												< 40						40-59				60-69	70-74	75-79		≥ 80
F.C. (Batt/min-1)				< 40							40-69	70-119				120-59		≥ 160								
T.A. systolique (mmHg)		< 70						70-99				100-199		≥ 200												
Température (C°)												< 39°			≥ 39°											
PaO2/FIO2 (mmHg) seulement si V.M. ou CPAP				< 100	100-199		≥ 200																			
Diurèse (l/jour)			< 0.500						0.500-0.999			≥ 1000														
Urée (mmol/l) (g/l)												< 10.0 < 0.60					10.0-29.9 0.60-1.79				≥ 30.0 ≥ 1.80					
Globules blancs			< 1.0									1.0-19.9			≥ 20.0											
Kaliémie (mEq/l)										< 3.0		3.0-4.9			≥ 5.0											
Natrémie (mEq/l)								< 125				125-144	≥ 145													
HCO3- (mEq/l)							< 15			15-19		≥ 20														
Bilirubine (µmol/l) si jaunisse (mg/l)												< 68.4 < 40.0				68.4-102.5 40.0-59.9				≥ 102.6 ≥ 60.0						
Score de Glasgow (Pts)	< 6	6 - 8				9 - 10		11-13				14 - 15														
Maladies chroniques																				cancer méta.	Mal. hém.				SIDA	
Type d'admission												Chir. prog.					Méd.		Chir. Urg.							
Somme des points																										

Total IGS II	Pts

Table 3. Comparison of the scoring systems performances to predict intensive care unit (ICU) and hospital mortalities

	ICU Mortality	Hospital Mortality
Mortality APACHE II predicted, 26.5% SAPS II predicted, 26.1%	Observed, 23%	Observed, 33%
Goodness-of-fit		
Calibration curves	SAPS II > APACHE II	SAPS II ~ APACHE II
Lemeshow-Hosmer method	SAPS II > APACHE II (p = .25 vs. < .05 for APACHE II)	SAPS II = APACHE II (both p < .001)
Discrimination		
Area under the ROC curve	SAPS II (area = 0.70) > APACHE II (area = 0.63)	SAPS II (area = 0.67) > APACHE II (area = 0.60)
Classification tables		
Correct classification rate at best threshold	APACHE II, 81% at 70% SAPS II, 78% at 60%	APACHE II, 70% at 70% SAPS II, 70% at 60%
Prediction in survivors	APACHE II > SAPS II (Correct prediction, 99% vs. 94%; p = .006)	APACHE II > SAPS II (Correct prediction, 99% vs. 95%; p = .04)
Prediction in nonsurvivors	APACHE II = SAPS II (Correct prediction, 20% vs. 25%; NS)	APACHE II = SAPS II (Correct prediction, 14% vs. 21%; NS)
Prognostic factor analysis	SAPS II = APACHE II (p < .001)	SAPS II = APACHE II (p < .001)

APACHE, Acute Physiology and Chronic Health Evaluation; SAPS, Simplified Acute Physiology Score; ROC, receiver operating characteristic.

Table 4. Univariate prognostic factors for intensive care unit (ICU) and hospital mortality

Variables	ICU Mortality RR	*p* Value	Hospital Mortality RR	*p* Value
APACHE II score (continuously assessed)	1.1	<.001	1.07	.0003
SAPS II score (continuously assessed)	1.05	<.001	1.05	<.001
Mean blood pressure (continuously assessed)	1.03	.02	1.02	.02
Pulse	1.02	.001	1.01	.02
Arterial pH	37.1	.005	51.3	.04
Hematocrit	0.96	.06	0.96	.02
Glasgow Coma Scale score	0.22	.006	0.32	.009
Platelet count	0.99	.005	0.98	.02
Leukocytosis	0.82	.003	0.86	.06
Acute renal failure	2.84	.002	1.9	.04

RR, relative risk; APACHE, Acute Physiology and Chronic Health Evaluation; SAPS, Simplified Acute Physiology Score.

En analyse multivariée, la seule variable significative du rapport de risque était l'IGS2 (SAPS II) (HR = 1,02; p < 0,001).

Nous avons également effectué la même analyse en ne considérant que les patients en vie après la sortie de l'hôpital pour déterminer le pronostic après les soins intensifs.

Au total, 174 patients étaient disponibles pour cette analyse avec un suivi médian de 703 jours (intervalle de 0 à 1 295 jours). Les systèmes de notation, APACHE II et SAPS II, n'étaient plus des facteurs de survie significatifs, mais les variables liées à la maladie néoplasique étaient les covariables explicatives sélectionnées, à savoir le cancer locorégional ($p = .008$) et la phase diagnostique ou curative de la maladie ($p = .0002$).

When a cancer patient is admitted to an intensive care unit for an acute problem, the short-term prognosis essentially depends on the acute physiologic changes induced by the complication, as reflected by the identification of the severity of illness scores in the multivariate analysis as the only significant factor. The severity scores, however, are not accurate enough to be used in the routine management of these patients.

Lorsqu'un patient atteint de cancer est admis dans une unité de soins intensifs pour un problème aigu, le pronostic à court terme dépend essentiellement des changements physiologiques aigus induits par la complication, comme en témoigne l'identification de la gravité des scores de maladie dans l'analyse multivariée comme le seul facteur significatif. Cependant, les scores de gravité ne sont pas suffisamment précis pour être utilisés dans la prise en charge de routine de ces patients.

Confirmé par une étude avec le score spécifique

Support Care Cancer (2004) 12:234–239
DOI 10.1007/s00520-003-0580-3

ORIGINAL ARTICLE

T. Berghmans
M. Paesmans
J. P. Sculier

Is a specific oncological scoring system better at predicting the prognosis of cancer patients admitted for an acute medical complication in an intensive care unit than general gravity scores?

En résumé

Variable	*Mortalité hospitalière*	*Survie après la sortie d'hospitalisation*
APACHE II	< 0,001	NS
IGS II	< 0,001	NS
Extension du cancer	NS	0,008
Phase du cancer	NS	0,0002

Depuis lors …

- 102 études (le plus souvent rétrospectives) avec une analyse multivariée
  - 28 valeur prédictive critères d'admission
  - 74 facteurs pronostiques des patients admis (21 hémopathies, 16 tumeurs solides, 33 populations mixtes, 4 méta-analyses)
- 5 études: pronostic survivants après sortie USI

Facteurs pronostics hémopathies malignes

- Score pronostique développé pour les soins intensifs (APACHE, SAPS, SOFA) ou non (Glasgow, Charlson) (n = 12)
- Type ou nombre de défaillances d'organes (n = 12)
- Utilisation d'un support ventilatoire (IMV ou NIV) (n = 13)
- Utilisation d'inotropes et / ou hypotension (n = 10)
- Présence d'une infection sévère (septicémie, infection fongique invasive) (N = 5)
- Greffe de moelle osseuse (n = 5)

Facteurs pronostics tumeurs solides

- score pronostique (n = 8)
- type ou nombre de défaillances d'organes (n = 9)
- statut de cancer (n = 6)

Facteurs pronostics séries mixtes

- Score pronostique (n = 19)
- Type ou nombre de défaillances d'organes (n = 25)
- Utilisation d'un support ventilatoire (IMV ou NIV) (n = 11)
- Condition générale (statut de performance) avant l'admission à l'USI (n = 8)
- Etat d'avancement ("statut") du cancer (n = 11)
- Âge (n = 9)
- Présence d'une infection sévère (septicémie, infection fongique invasive) (n = 7)
- Date d'admission et / ou la durée du séjour à l'hôpital avant l'admission en USI (n = 5)
- Admission pour raisons médicales (par opposition aux complications chirurgicales (n = 5)

Évaluer l'état d'avancement du cancer avant de décider de la réanimation.

Le stade fonctionnel du cancer (phase selon le projet thérapeutique) :

- Stade I: diagnostic
- Stade II: traitement à visée curative
- Stade III: traitement à visée de contrôle
- Stade IV: stade pivot
- Stade V: soins palliatifs

Med J Aust 153: 225; 1990

Variable	***Mortalité hospitalière***
APACHE II	< 0,001
IGS II	< 0,001
Extension du cancer	NS
Phase du cancer	NS

Avec l'intention de ne pas proposer la réanimation en cas de d'absence de projet thérapeutique efficace

La réanimation d'attente

Intensive Care Med (2006) 32:1560–1568
DOI 10.1007/s00134-006-0286-3

ORIGINAL

B. Lamia
M.-F. Hellot
C. Girault
F. Tamion
F. Dachraoui
P. Lenain
G. Bonmarchand

Changes in severity and organ failure scores as prognostic factors in onco-hematological malignancy patients admitted to the ICU

Une application pratique pour les scores de gravité :

- Les patients qui avaient amélioré leur score à 72 heures voyaient leur chance de survivre augmenter, au contraire de ceux dont le score s'aggravait.
- La réanimation d'attente s'adresse au patient à qui on désire donner une chance mais sans s'acharner s'il n'y a pas d'amélioration après 72 heures, celle étant évaluée par des scores de gravité comme l'IGS II, le SOFA, l'ODIN, le LODS

Published in final edited form as:

JAMA Oncol. 2016 January 1; 2(1): 76–83. doi:10.1001/jamaoncol.2015.3336.

Time-Limited Trials of Intensive Care for Critically Ill Patients With Cancer:

How Long Is Long Enough?

Mark G. Shrime, MD, MPH, PhD, **Bart S. Ferket, MD, PhD**, **Daniel J. Scott, PhD**, **Joon Lee, PhD**, **Diana Barragan-Bradford, MD**, **Tom Pollard, PhD**, **Yaseen M. Arabi, MD**, **Hasan M. Al-Dorzi, MD**, **Rebecca M. Baron, MD**, **M. G. Myriam Hunink, MD, PhD**, **Leo A. Celi, MD, MS, MPH**, and **Peggy S. Lai, MD, MPH**

Des essais de soins intensifs d'une durée de 1 à 4 jours peuvent être suffisants chez les patients atteints de tumeurs solides de pronostic défavorable, alors que les patients atteints de néoplasies hématologiques malignes ou d'une maladie moins grave semblent bénéficier d'un essai plus long de soins intensifs (jusqu'à 2 semaines).

Le pronostic de la réanimation cardio-respiratoire

Resuscitation of Patients With Metastatic Cancer

Is Transient Benefit Still Futile?

Arch Intern Med—Vol 151, February 1991

Survival of Cancer Patients After Inhospital Cardiopulmonary Resuscitation, 1980 to 1989*

Source, y	All Patients			Patients With Cancer					
				All Cancer Patients			Metastatic Cancer Patients		
	No. of Patients	Initial Response, No. (%)	Survival to Discharge, No. (%)	No. of Patients	Initial Response, No. (%)	Survival to Discharge, No. (%)	No. of Patients	Initial Response, No. (%)	Survival to Discharge, No. (%)
Arena et al,[14] 1980	48	24 (50)	7 (15)	39	23 (59)	5 (13)	23	13 (57)	0(0)
Hershey and Fisher,[15] 1982	79	53 (67)	11 (14)	6	5 (83)	0 (0)	5	4 (80)	0(0)
Bedell et al,[16] 1983	294	128 (44)	41 (14)	57	NA	2 (4)	NA†	NA	0(0)
Sowden et al,[17] 1984	108	50 (46)	23 (21)	11	NA	0 (0)	NA†	NA	0(0)
Kelly et al,[18] 1986	62	29 (47)	11 (18)	7	NA	0 (0)	NA†	NA	NA
Urberg and Ways,[19] 1987	121	46 (38)	13 (11)	8	NA	0 (0)	NA†	NA	NA
Rozenbaum and Shenkman,[20] 1988	71	29 (41)	13 (18)	5	NA	0 (0)	5	NA	0(0)
Taffet et al,[13] 1988	329	161 (49)	21 (6)	89	33 (37)	0 (0)	63	NA	0(0)
Keating,[21] 1989	156	68 (44)	17 (11)	21‡	NA	0 (0)	21‡	NA	0(0)

*NA indicates not available.
†Metastatic cancer not separated from local disease.
‡Described as "incurable malignancy."

Support Care Cancer (1993) 1:135–138

Supportive Care in Cancer

Original articles

Cardiopulmonary resuscitation in medical cancer patients: the experience of a medical intensive-care unit of a cancer centre

J. P. Sculier, E. Markiewicz

Unité d'Administration et de Surveillance de Traitements Intensifs, Service de Médecine et Laboratoire d'Investigation
Clinique H. J. Tagnon, Institut Bordet, Centre des Tumeurs de l'Université Libre de Bruxelles, 1, Rue Héger-Bordet, B-1000 Brussels, Belgium

Table 1. Results according to patients' clinical characteristics. ICU, Intensive-care unit

Characteristic	Category[a]			
	A	B	C	D
n	30	12	2	5
Age, mean (years)	50	56	57	52
Range	20–77	26–77	54–60	42–63
Sex				
Male	10	6	1	2
Female	20	6	1	3
Type of tumour				
Solid	13	7	2	5
Locoregional	3	2	—	1
Metastatic	10	5	2	4
Haematological	17	5	—	—
Functional stage				
Diagnosis	2	—	—	—
Treatment for cure	14	4	—	—
Treatment for control	11	5	1	5
Candidate for palliative care	3	3	1	—
Cause of admission in ICU				
Cardiac arrest	5	5	2	2
Anticancer treatment	—	—	3	
Medical complications	25	7	—	—
Cause of cardiac arrest				
Drug cardiovascular toxicity	—	2	1	5
Other causes	30	10	1	0

Table 3. Characteristics of the long-term survivors. NSCLC, Non-small-cell lung cancer; IL-2, interleukin-2; LAK, lymphokine-activated killer

Characteristic	Patient no.				
	1	2	3	4	5
Sex and age (years)	F 54	M 62	F 42	F 39	F 61
Tumour	Ovary	NSCLC	Larynx	Liposarcoma	Kidney
Functional stage	Control	Control	Control	Control	Control
Disease extent	Metastatic	Metastatic	Locoregional	Metastatic	Metastatic
Cancer evolution duration (months)	39	1	3	68	23
Cause of admission to ICU	Taxol administration	Combination[a] chemotherapy administration	Cardiac arrest	Cardiac arrest	IL-2 + LAK cell therapy
Presumed cause of cardiac arrest	Taxol	Chemotherapy	Chemotherapy by cisplatin + 5-FU	Accidental KCl injection	IL-2 toxicity
Location of cardiac arrest	ICU	ICU	Floor	Floor	ICU
Survival (months)	6+	7	3+	7	15

[a] Ifosfamide + cisplatin + carboplatin

Cardiopulmonary Resuscitation and the Patient With Cancer

By Carlo E. Vitelli, Karen Cooper, Andre Rogatko, and Murray F. Brennan

The records of 114 cancer patients suffering cardiopulmonary arrests (CPA) during a 3-year period at Memorial Sloan-Kettering Cancer Center (MSKCC) were retrospectively reviewed to identify variables predicting final outcome in these patients. Although 65.7% of the patients were successfully resuscitated, only 12 (10.5%) were discharged alive from the hospital. Median survival after discharge was 150 days. By univariate and multivariate analysis, the only variable predicting the likelihood of a patient's being discharged alive after a CPA was the performance status of the patient at the time of admission to the hospital. Thus, a patient spending more than 50% of the time in bed at the time of admission had only a 2.3% chance of being discharged alive after CPA. A thorough discussion of these findings between physicians and patients and their families is strongly recommended at the time of admission to spare cancer patients unnecessary invasive resuscitative procedures.

J Clin Oncol 9:111-115.

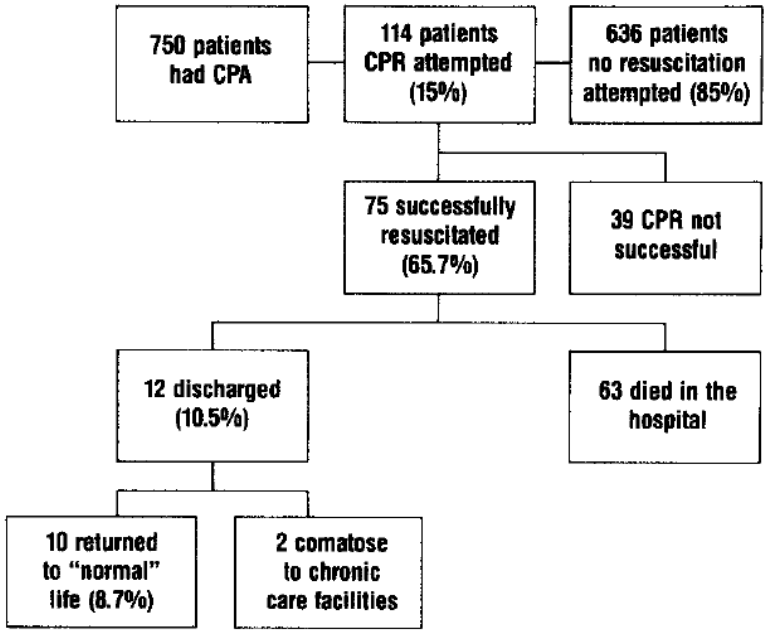

Fig 1. Outcome of 750 cardiopulmonary arrests. CPA, cardiopulmonary arrest; CPR, cardiopulmonary resuscitation.

Table 3. Univariate Analysis Results

Variable	*P* Value		
	Y1	Y2	Y3
Age*	.5400	.7535	.4432
Performance status*	.0081†	.4311	.0018†
Interval from diagnosis of cancer to the arrest*	.7355	.1195	.4420
Sex	.6037	.0020*	.8006
Underlying malignancy	.7616	.1524	.5299
Cause of arrest	.2471	.4194	.1058

NOTE. See explanation in text for Y1, Y2, and Y3.

*The *P* value is from a Mann-Whitney test or from a contingency table analysis.

†$P < .05$.

Table 4. Final Model of the Logistic Regression Analysis

Response	Predictor				Goodness of Fit
	Name	*P* Value	Coefficient (SE)	Constant (SE)	
Y1	KPS	.01	.05 (.022)	−5.60 (1.59)	.998
Y2	Sex	<.00001	1.49 (.369)	—	.074
Y3	KPS	.001	.07 (.026)	−6.46 (1.85)	.908

NOTE. The *P* value for the predictor variable selected is a likelihood ratio test. If the value of the goodness of fit test is ≥.05, the hypothesis that the model fits the data is accepted. For Y1, Y2, and Y3 see explanation in text.

Revue systématique

Resuscitation (2006) **71**, 152—160

ELSEVIER

www.elsevier.com/locate/resuscitation

CLINICAL PAPER

Survival in cancer patients undergoing in-hospital cardiopulmonary resuscitation: A meta-analysis☆

Gary M. Reisfield[a,*], Susannah Kish Wallace[b,1], Mark F. Munsell[c,2], Fern J. Webb[d,3], Edgar R. Alvarez[e,4], George R. Wilson[e,5]

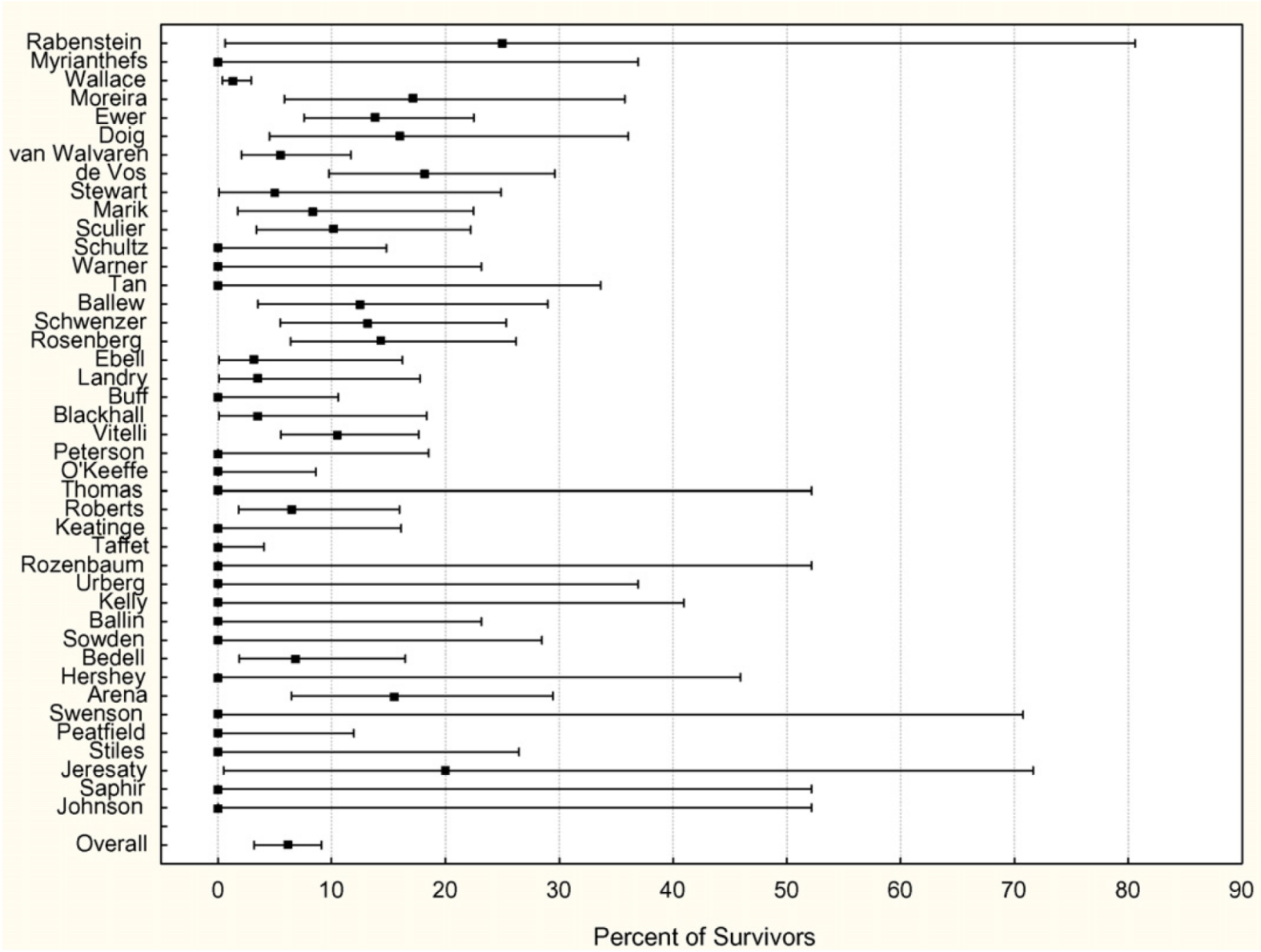
Rabenstein
Myrianthefs
Wallace
Moreira
Ewer
Doig
van Walvaren
de Vos
Stewart
Marik
Sculier
Schultz
Warner
Tan
Ballew
Schwenzer
Rosenberg
Ebell
Landry
Buff
Blackhall
Vitelli
Peterson
O'Keeffe
Thomas
Roberts
Keatinge
Taffet
Rozenbaum
Urberg
Kelly
Ballin
Sowden
Bedell
Hershey
Arena
Swenson
Peatfield
Stiles
Jeresaty
Saphir
Johnson
Overall
0
10
20
30
40
50
60
70
80
90
Percent of Survivors

Table 2 Percent of survivors to hospital discharge and 95% confidence intervals for subgroups of patients who underwent in-hospital cardiopulmonary resuscitation

	Number of survivors/ number of patients	Percent of survivors	95% Confidence interval
Solid tumor	51/718[a]	7.1	3.3—10.9
Localised	28/295	9.5	4.3—14.6
Metastatic	23/411	5.6	1.4—8.6
Hematologic/HSCT recipients	8/400[a]	2.0	0—4.4
Lymphoma/myeloma	2/59	3.4	0—6.9
Leukemia	2/219	0.9	0—3.0
HSCT recipients	0/56	0.0	—
Location of arrest			
Intensive Care Unit	11/500	2.2	0—4.6
Ward	18/179	10.1	3.5—16.6
Time period			
Pre-1990	12/324	3.7	0—7.9
1990—2005	93/1383	6.7	3.0—10.4

HSCT: hematopoietic stem cell transplantation.

[a] Numerator and denominator totals exceed that of the subgroups because some studies did not stratify according to subgroup.

Table 3 Survival to hospital discharge among subgroups of patients who underwent in-hospital cardiopulmonary resuscitation

	Number of survivors	Number of patients in subgroup	Percent of survivors	Odds ratio	95% Confidence interval	*p*-Value
Type of malignancy						
Hematological	8	400	2.0	1.00	—	—
Solid tumor	51	718	7.1	3.75	1.76—7.98	0.001
Location of arrest						
Intensive Care Unit	11	500	2.2	1.00	—	—
Ward	18	179	10.1	4.97	2.30—10.74	<0.001
Extent of disease — among solid tumor patients						
Metastatic	23	411	5.6	1.00	—	—
Localised	28	295	9.5	1.77	1.00—3.14	0.051
Time period — all patients						
Pre-1990	12	324	3.7	1.00	—	—
1990—2005	93	1383	6.7	1.87	1.01—3.46	0.045
Time period — metastatic disease						
Pre-1990	0	115	0.0	1.00	—	—
1990—2005	23	296	7.8	13.66	2.37 to $+\infty$	<0.001
Time period — localised disease						
Pre-1990	11	108	10.2	1.00	—	—
1990—2005	17	187	9.1	0.9	0.40—1.96	0.758
Extent of disease — ICU						
Metastatic	6	113	5.3	1.00	—	—
Localised	2	41	4.9	0.91	0.18—4.72	0.915
Extent of disease — ward						
Metastatic	6	37	16.2	1.00	—	—
Localised	6	31	19.4	1.24	0.36—4.32	0.736

Conclusions: La survie globale de la RCR à la sortie de l'hôpital chez les patients cancéreux se compare **favorablement** aux taux de survie chez les patients hospitalisés non sélectionnés. L'amélioration des résultats au cours des dernières années chez les patients atteints d'une maladie métastatique est susceptible de refléter **une utilisation plus sélective de la RCR** chez les patients cancéreux, les patients les plus malades étant désélectionnés.

Pre-arrest and intra-arrest prognostic factors associated with survival after in-hospital cardiac arrest: systematic review and meta-analysis

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ABSTRACT

OBJECTIVE

To determine associations between important pre-arrest and intra-arrest prognostic factors and survival after in-hospital cardiac arrest.

DESIGN

Systematic review and meta-analysis.

DATA SOURCES

Medline, PubMed, Embase, Scopus, Web of Science, and the Cochrane Database of Systematic Reviews from inception to 4 February 2019. Primary, unpublished data from the United Kingdom National Cardiac Arrest Audit database.

RESULTS

The primary analysis included 23 cohort studies. Of the pre-arrest factors, male sex (odds ratio 0.84, 95% confidence interval 0.73 to 0.95, moderate certainty), age 60 or older (0.50, 0.40 to 0.62, low certainty), active malignancy (0.57, 0.45 to 0.71, high certainty), and history of chronic kidney disease (0.56, 0.40 to 0.78, high certainty) were associated with reduced odds of survival after in-hospital cardiac arrest. Of the intra-arrest factors, witnessed arrest (2.71, 2.17 to 3.38, high certainty), monitored arrest (2.23, 1.41 to 3.52, high certainty), arrest during daytime hours (1.41, 1.20 to 1.66, high certainty), and initial shockable rhythm (5.28, 3.78 to 7.39, high certainty)

Table 2 | Pre-arrest and intra-arrest prognostic factors and associated odds of survival after in-hospital cardiac arrest

		Model adjusted data			
Prognostic factors	**Studies**	**OR (95% CI)**	**P***	**I^2 (%)**	**GRADE certainty†**
Pre-arrest factors					
Demographics:					
Male sex	7	0.84 (0.73 to 0.95)	0.007	66	Moderate
Age ≥60	3	0.50 (0.40 to 0.62)	<0.001	50	Low
Age ≥70	2	0.42 (0.18 to 0.99)	0.050	69	Low
Comorbidities at admission:					
Active malignancy	4	0.57 (0.45 to 0.71)	<0.001	71	High
Congestive heart failure	1	0.62 (0.56 to 0.68)	<0.001	NA	Moderate
Chronic kidney disease	5	0.56 (0.40 to 0.78)	0.001	92	High
COPD	1	0.65 (0.58 to 0.72)	<0.001	NA	Moderate
Diabetes mellitus	1	0.53 (0.34 to 0.83)	0.005	NA	Moderate
Admission diagnosis:					
Acute coronary syndrome	2	0.70 (0.28 to 1.78)	0.460	99	Low
Sepsis	1	0.80 (0.70 to 0.91)	0.001	NA	Moderate
Intra-arrest factors					
Witnessed arrest	4	2.71 (2.17 to 3.38)	<0.001	68	High
Monitored patient	6	2.23 (1.41 to 3.52)	<0.001	97	High
Arrest during daytime hours	5	1.41 (1.20 to 1.66)	<0.001	94	High
Ventricular tachycardia	4	3.76 (2.95 to 4.78)	<0.001	85	High
Ventricular fibrillation	4	3.68 (2.68 to 5.05)	<0.001	94	High
Asystole	4	0.42 (0.32 to 0.56)	<0.001	12	High
Pulseless electrical activity	2	0.59 (0.27 to 1.27)	0.180	77	High
Shockable rhythm	12	5.28 (3.78 to 7.39)	<0.001	96	High
Intubation during arrest	5	0.54 (0.42 to 0.70)	<0.001	73	Moderate
Resuscitation duration ≥15 min	2	0.12 (0.07 to 0.19)	<0.001	27	High

COPD=chronic obstructive pulmonary disease; GRADE=grading of recommendations, assessment, development, and evaluation; NA=not applicable; OR=odds ratio.
*P values obtained from the test for overall effect.
†GRADE certainty of estimates in studies of prognosis, as described by Iorio and colleagues[25]

Facteurs pré-arrêt et intra-arrêt associés à la survie après un arrêt cardiaque à l'hôpital

- Parmi les facteurs pré-arrêt, le sexe masculin, l'augmentation de l'âge, la malignité active et la maladie rénale chronique étaient associés à une survie réduite.
- Parmi les facteurs intra-arrêt, un arrêt assisté, un environnement surveillé, un arrêt cardiaque pendant la journée et un rythme choquable étaient associés à une survie accrue, tandis que l'intubation trachéale et une réanimation prolongée étaient associées à une survie réduite.

European Heart Journal
Acute Cardiovascular Care

ESC European Society of Cardiology

Original scientific paper

Cancer is not associated with higher short or long-term mortality after successful resuscitation from out-of-hospital cardiac arrest when adjusting for prognostic factors

Matilde Winther-Jensen[1], Jesper Kjaergaard[1], Christian Hassager[1], Lars Køber[1], Freddy Lippert[2] and Helle Søholm[1,3]

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1–9

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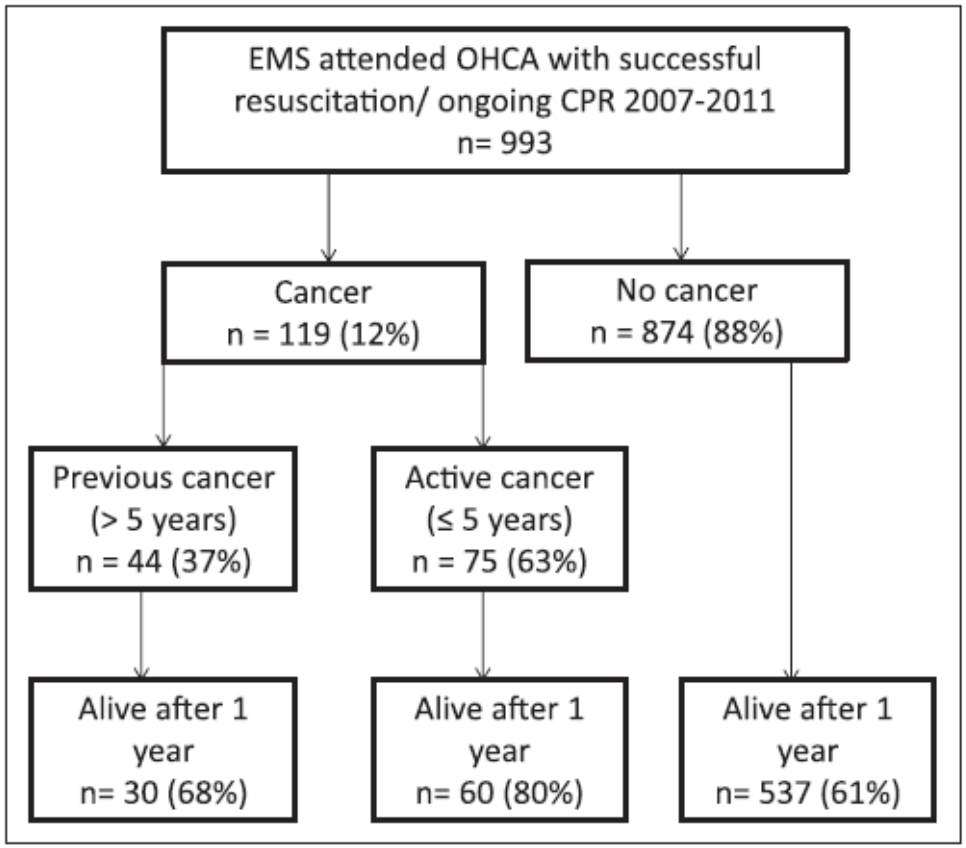

Figure 1. Flow chart of included patients. All patients successfully resuscitated from OHCA and attended by the EMS in the greater Copenhagen area between 2007 and 2011. *Abbreviations:* EMS: Emergency Medical Services, CPR: Cardiopulmonary resuscitation, OHCA: Out-of-hospital cardiac arrest.

Table 2. Factors associated with 30-day and 1-year mortality in patients with and without cancer prior to successful resuscitation from OHCA in univariate and multivariate analyses.

	30-Day mortality		**1-Year mortality**		**End of follow-up** (no cancer: mean 811 days; cancer: mean 406 days)	
	Univariate HR (95% CI)	Multivariate HR (95% CI)	Univariate HR (95% CI)	Multivariate HR (95% CI)	Univariate HR (95% CI)	Multivariate HR (95% CI)
Cancer prior to OHCA	**1.35 (1.07–1.71)**	0.98 (0.76–1.27)	**1.41 (1.13–1.76)**	0.99 (0.78–1.27)	**1.49 (1.21–1.83)**	1.01 (0.80–1.27)
Male sex	**0.64 (0.54–0.76)**	0.93 (0.77–1.13)	**0.63 (0.53–0.74)**	0.92 (0.77–1.11)	**0.64 (0.54–0.74)**	0.92 (0.77–1.10)
Age (5-year increase)	**1.14 (1.11–1.18)**	**1.14 (1.10–1.18)**	**1.15 (1.12–1.19)**	**1.15 (1.11–1.19)**	**1.18 (1.14–1.21)**	**1.17 (1.13–1.21)**
Shockable primary rhythm	**0.34 (0.28–0.40)**	**0.31 (0.25–0.37)**	**0.33 (0.28–0.39)**	**0.32 (0.26–0.38)**	**0.36 (0.31–0.41)**	**0.35 (0.30–0.42)**
Bystander witnessed OHCA	**0.69 (0.55–0.86)**	0.78 (0.61–0.997)	**0.68 (0.55–0.84)**	**0.76 (0.60–0.96)**	**0.69 (0.56–0.84)**	**0.72 (0.58–0.90)**
CCI of 3 or greater (cancer excluded)	**1.6 (1.32–1.95)**	**1.32 (1.07–1.64)**	**1.72 (1.43–2.08)**	**1.42 (1.16–1.74)**	**1.91 (1.60–2.27)**	**1.59 (1.31–1.92)**
Time to ROSC (pr. 5 minutes)	**1.08 (1.05–1.11)**	**1.14 (1.11–1.18)**	**1.07 (1.04–1.10)**	**1.13 (1.10–1.17)**	**1.05 (1.02–1.08)**	**1.11 (1.07–1.14)**

CCI: Charlson comorbidity index; CI: confidence interval; HR: hazard ratio; OHCA: out-of-hospital cardiac arrest; ROSC: return of spontaneous circulation.

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Agence française de sécurité sanitaire des produits de santé
Direction de l'Evaluation
des Médicaments et des Produits Biologiques
Département de Pharmacovigilance

REPUBLIQUE FRANÇAISE

Saint-Denis, le 24 mars 2009

COMMISSION NATIONALE DE PHARMACOVIGILANCE

Compte rendu de la réunion du mardi 27 janvier 2009

284 cas

- Les effets indésirables ont été classés selon les critères de sévérité de Ring et Messmer[1] : dans 15% des cas, seule une atteinte cutanée isolée (grade I) a été rapportée et 30% des cas correspondaient à des symptômes modérés d'hypersensibilité (grade II).

Parmi les patients ayant présenté un facteur de sévérité (grade III et IV), dix sept patients (6%) ont présenté un arrêt cardio-respiratoire.

- Dans la majorité des cas, l'évolution était favorable sous traitement symptomatique. Quatre décès sont rapportés.

Characteristics of Cardiac Arrest in Cancer Patients as a Predictor of Survival after Cardiopulmonary Resuscitation

Michael S. Ewer, M.D., M.P.H., J.D.[1,2]
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Charles G. Martin, Ph.D., M.B.A.[4]
Kristen J. Price, M.D.[3]
Thomas W. Feeley, M.D.[3]

BACKGROUND. Despite advances in cardiopulmonary resuscitation and the education of its providers, survival remains dismal for cancer patients suffering in-hospital cardiac arrest. In an effort to determine if characteristics of cardiac arrest would represent a useful parameter for prognostication and recommendations regarding the suitability of ongoing resuscitation for various groups, this review

Cancer 2001;92:1905–12.

TABLE 1
Patients and Disease

Characteristic	No. (%)
All patients	243
Gender	
Men	135 (56)
Women	108 (44)
Median age (yrs, range)	58 (1.5–88)
Malignancy	
Solid tumor	112 (46)
Leukemia	75 (31)
Lymphoma/multiple myeloma	32 (13)
Peripheral blood or bone marrow transplant	22 (9)
No malignancy	2 (1)

TABLE 2
Hospital Survival by Patient Subgroup

Subgroup	No. of survivors/total in subgroup (%)	*P* value
All episodes of CPR	16/244 (6.6)	
Type of malignancy		
Solid tumor	14/114 (12.3)	
Hematologic/BMT	2/130 (1.5)	0.001
Location of initial arrest		
Inpatient floor areas	14/102 (13.7)	
Intensive care unit	2/142 (1.4)	< 0.001
Characteristic of arrest		
Unanticipated	16/73 (21.9)	
Anticipated	0/171 (0)	< 0.001

CPR: cardiopulmonary resuscitation; BMT: peripheral blood or bone marrow transplantation.

TABLE 3
Logistic Regression Prognostic Model for Hospital Mortality[a]

Factor	Odds ratio	95% confidence interval	*P* value
Anticipated vs. sudden arrest	7.17	1.88–27.4	0.0010
Hematologic malignancy vs. solid tumor	3.64	0.744–17.8	0.0744
Initial arrest in MICU vs. inpatient floors areas	3.13	0.809–12.1	0.0738

MICU: medical intensive care unit.

[a] Hosmer-Lemeshow goodness of fit: $P = 0.866$; area under the receiver operating characteristic curve = 0.846.

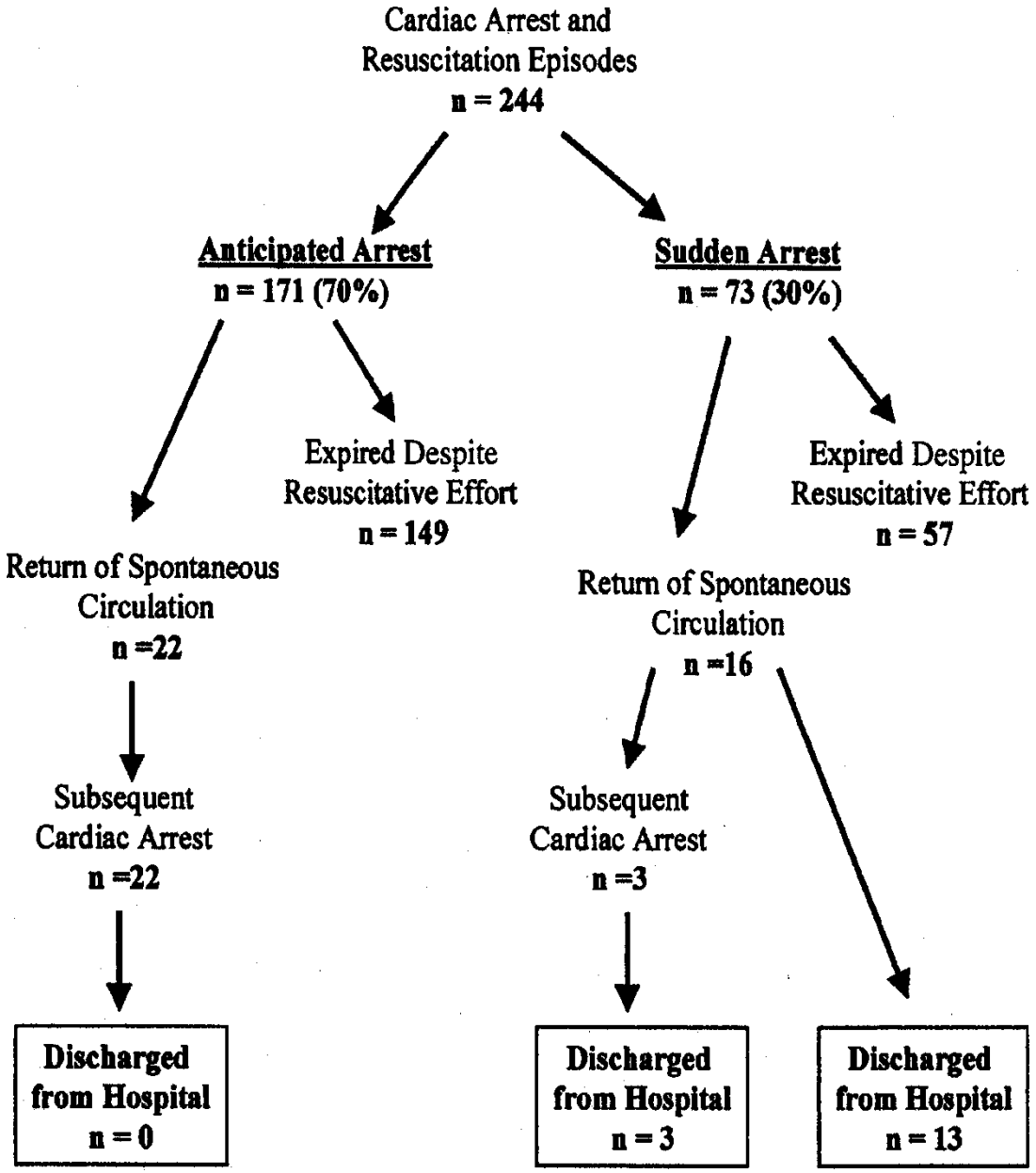

FIGURE 2. Patient outcomes based on characterization of arrest.

Les nouvelles particularités américaines

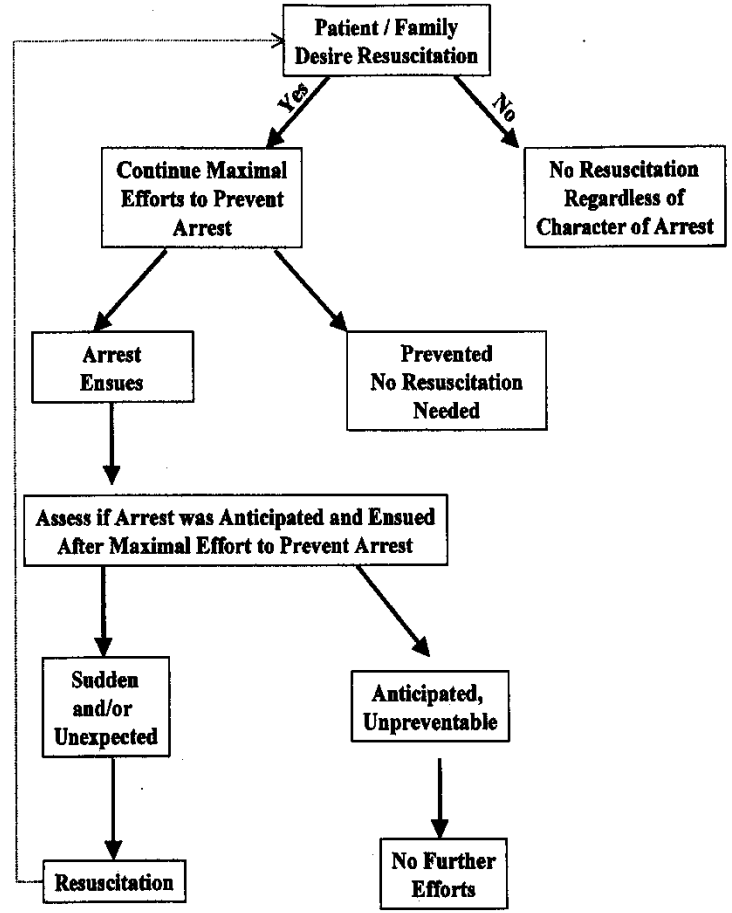

FIGURE 3. Resuscitation algorithm.

Attention au dérapage!

Original Article

Characteristics of Patients Who Refuse Do-Not-Resuscitate Orders Upon Admission to an Acute Palliative Care Unit in a Comprehensive Cancer Center

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Cancer 2010;116:3061–70.