Les indications de soins intensifs

Principales causes d'admission

- Complication médicale du cancer ou de son traitement
- Recouvrance et soins postopératoires
- Traitement anticancéreux intensif, à risque et/ou nouveau
- *Affection sévère non liée au cancer ou à son traitement*

La sélection des patients

Il faut tenir compte d'un double problème souvent intriqué

- **Problème chronique** (contexte) : cancer
  - Projet thérapeutique
  - Souhaits du patient
- **Problème nécessitant les soins intensifs** : complication le plus souvent
  - Traitement spécifique : peu de données sur les complications individuelles amenant à l'USI dans la littérature
  - Support USI : surveillance intensive, RCR, VMI, VNI, EER, amines

Sélection initiale

ETAPES DE LA MALADIE CANCEREUSE	*INDICATIONS POUR LA REANIMATION*
• diagnostic	• +
• traitement à visée curative	• +
• traitement à visée de rémission	• + (ou réanimation d'attente)
• stade pivot	• - sauf traitements expérimentaux (phase I)
• soins palliatifs	

Le projet thérapeutique

- Programme de soins
  - Défini par tumeurs en Belgique
- Nouvelles thérapeutiques efficaces
  - Immunothérapies nouvelles
- Traitement expérimental

Programme de soins oncologiques - IJB

Tables des matières

Le statut des patients

- **DNR**
- **NTBR (DNI …)**
- **NT**

2017 Arrêté ministériel

Suite à un prescrit ministériel imposant l'enregistrement informatisé des volontés thérapeutiques du patient, tout malade hospitalisé en Belgique doit avoir une information dans son dossier sur les limites thérapeutiques y compris l'absence de statut spécifique et de limitations thérapeutiques (Arrêté ministériel fixant les modalités de répartition du budget de l'année 2017 visé à l'article 61, § 1er, 4°, de l'arrêté royal du 25 avril 2002 relatif à la fixation et à la liquidation du budget des moyens financiers des hôpitaux).

Institut Jules Bordet – Octobre 2017

Définition du code NTBR :

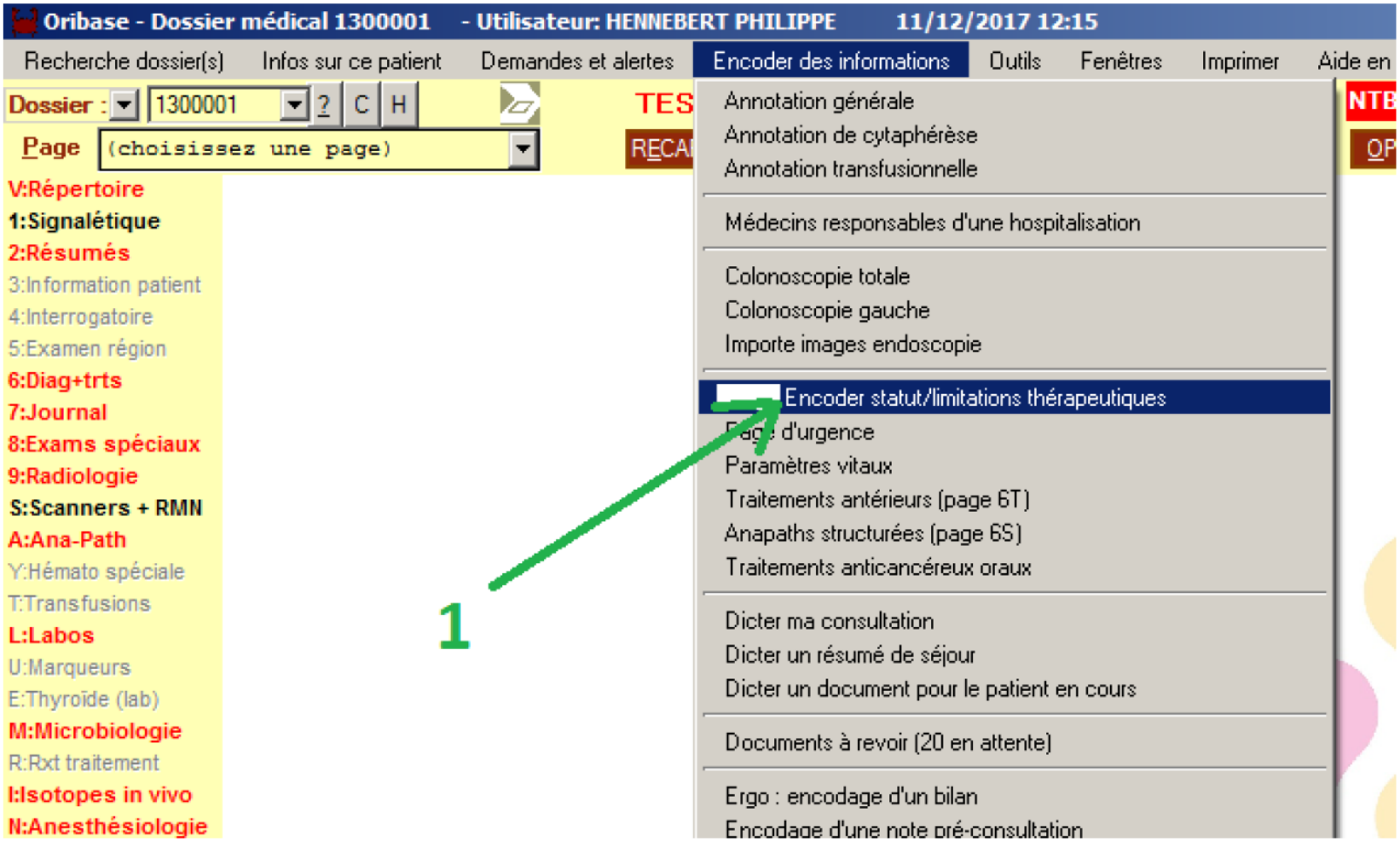
Le code **NTBR** signifie **« Not To Be Resuscitated »**. Il correspond au code DNR, signifiant « Do Not Resuscitate » plus largement utilisé dans la littérature anglo-saxonne.

Il signifie qu'aucune manœuvre ne sera tentée **en cas d'arrêt cardio-respiratoire** : **pas de massage cardiaque ni d'intubation endo-trachéale**. Il est la traduction d'une décision partagée entre le médecin et le patient, visant à éviter qu'il ne traverse des traitements inutilement lourds et n'ayant aucun impact significatif en termes de durée ou de qualité de vie.

L'application de ce code doit être décidée par un médecin senior , et dans tous les cas où c'est possible, en concertation avec le médecin traitant et les médecins cliniciens de l'Institut Bordet principalement impliqués dans la prise en charge. Elle sera notifiée dans le dossier médical électronique par un médecin.

Le code NTBR n'exclut pas les techniques de support vital y compris la ventilation invasive, en cas de choc septique ou hémodynamique, d'hypotension, d'arythmie cardiaque, d'embolie pulmonaire, d'épanchement pleural ou péricardique, etc.

Un patient « NTBR » peut être admis dans une unité de soins intensifs selon les circonstances.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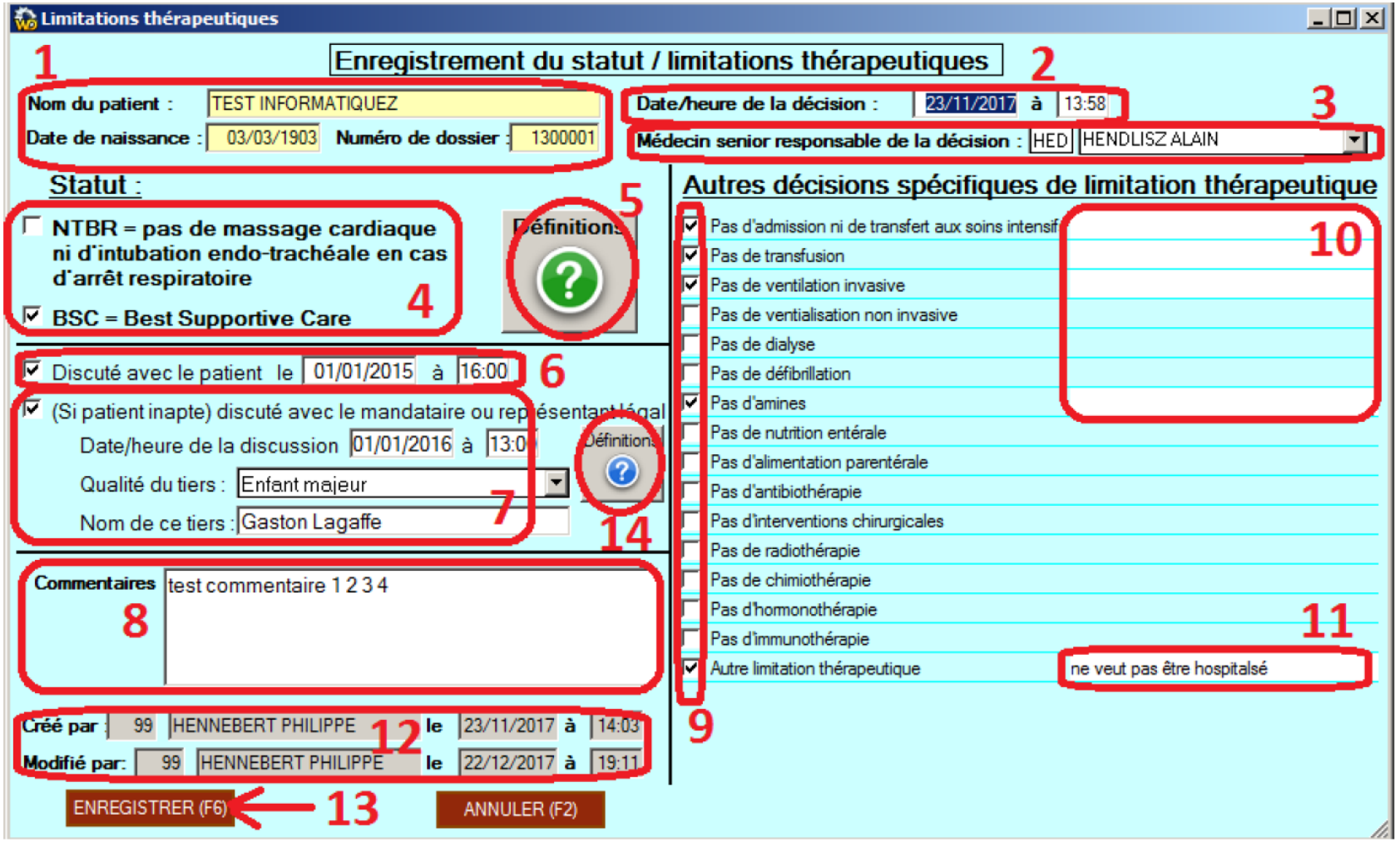
Infos sur ce patient
Demandes et alertes
Encoder des informations
Outils
Fenêtres
Imprimer
Aide en
Dossier :
1300001
Page
(choisissez une page)
V:Répertoire
1:Signalétique
2:Résumés
3:Information patient
4:Interrogatoire
5:Examen région
6:Diag+trts
7:Journal
8:Exams spéciaux
9:Radiologie
S:Scanners + RMN
A:Ana-Path
Y:Hémato spéciale
T:Transfusions
L:Labos
U:Marqueurs
E:Thyroïde (lab)
M:Microbiologie
R:Rxt traitement
I:Isotopes in vivo
N:Anesthésiologie
Annotation générale
Annotation de cytaphérèse
Annotation transfusionnelle
Médecins responsables d'une hospitalisation
Colonoscopie totale
Colonoscopie gauche
Importe images endoscopie
Encoder statut/limitations thérapeutiques
Page d'urgence
Paramètres vitaux
Traitements antérieurs (page 6T)
Anapaths structurées (page 6S)
Traitements anticancéreux oraux
Dicter ma consultation
Dicter un résumé de séjour
Dicter un document pour le patient en cours
Documents à revoir (20 en attente)
Ergo : encodage d'un bilan
Encodage d'une note pré-consultation
1


Limitations thérapeutiques
1
Enregistrement du statut / limitations thérapeutiques
2
Nom du patient : TEST INFORMATIQUEZ
Date de naissance : 03/03/1903 Numéro de dossier : 1300001
Date/heure de la décision : 23/11/2017 à 13:58
3
Médecin senior responsable de la décision : HED HENDLISZ ALAIN
Statut :
NTBR = pas de massage cardiaque ni d'intubation endo-trachéale en cas d'arrêt respiratoire
BSC = Best Supportive Care
4
Définitions
5
Discuté avec le patient le 01/01/2015 à 16:00
6
(Si patient inapte) discuté avec le mandataire ou représentant légal
Date/heure de la discussion 01/01/2016 à 13:0
Qualité du tiers : Enfant majeur
Nom de ce tiers : Gaston Lagaffe
7
Définitions
14
Commentaires
8
test commentaire 1 2 3 4
Créé par : 99 HENNEBERT PHILIPPE le 23/11/2017 à 14:03
Modifié par: 99 HENNEBERT PHILIPPE le 22/12/2017 à 19:11
12
ENREGISTRER (F6)
13
ANNULER (F2)
Autres décisions spécifiques de limitation thérapeutique
Pas d'admission ni de transfert aux soins intensif
Pas de transfusion
Pas de ventilation invasive
Pas de ventialisation non invasive
Pas de dialyse
Pas de défibrillation
Pas d'amines
Pas de nutrition entérale
Pas d'alimentation parentérale
Pas d'antibiothérapie
Pas d'interventions chirurgicales
Pas de radiothérapie
Pas de chimiothérapie
Pas d'hormonothérapie
Pas d'immunothérapie
Autre limitation thérapeutique
9
10
11
ne veut pas être hospitalsé

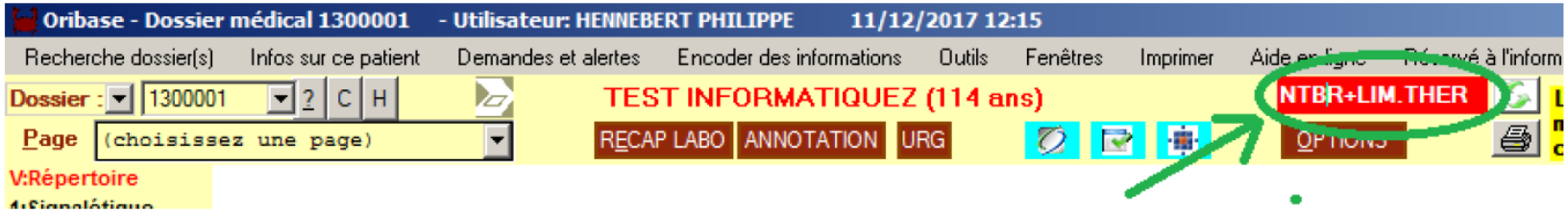
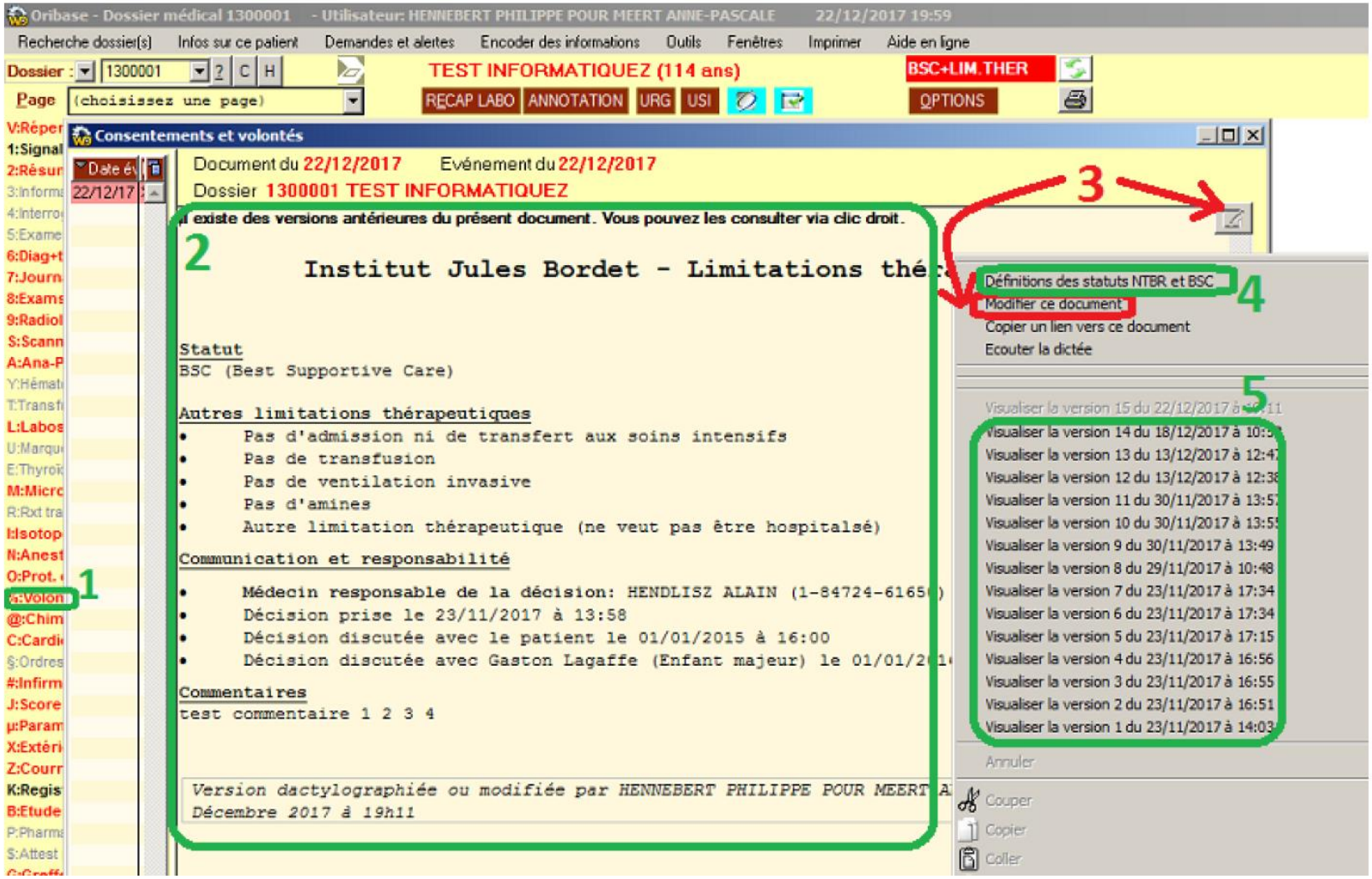


Fig 3 – visualisation à l'ouverture du dossier Oribase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Recherche dossier(s)
Infos sur ce patient
Demandes et alertes
Encoder des informations
Outils
Fenêtres
Imprimer
Aide en ligne
Dossier : 1300001
TEST INFORMATIQUEZ (114 ans)
BSC+LIM.THER
Page (choisissez une page)
RECAP LABO
ANNOTATION
URG
USI
OPTIONS
Consentements et volontés
Document du 22/12/2017 Evénement du 22/12/2017
Dossier 1300001 TEST INFORMATIQUEZ
Il existe des versions antérieures du présent document. Vous pouvez les consulter via clic droit.
2
Institut Jules Bordet - Limitations thé
Statut
BSC (Best Supportive Care)
Autres limitations thérapeutiques
Pas d'admission ni de transfert aux soins intensifs
Pas de transfusion
Pas de ventilation invasive
Pas d'amines
Autre limitation thérapeutique (ne veut pas être hospitalsé)
Communication et responsabilité
Médecin responsable de la décision: HENDLISZ ALAIN (1-84724-6165
Décision prise le 23/11/2017 à 13:58
Décision discutée avec le patient le 01/01/2015 à 16:00
Décision discutée avec Gaston Lagaffe (Enfant majeur) le 01/01/2
Commentaires
test commentaire 1 2 3 4
Version dactylographiée ou modifiée par HENNEBERT PHILIPPE POUR MEERT A
Décembre 2017 à 19h11
1
3
4
Définitions des statuts NTBR et BSC
Modifier ce document
Copier un lien vers ce document
Ecouter la dictée
5
Visualiser la version 14 du 18/12/2017 à 10:
Visualiser la version 13 du 13/12/2017 à 12:4
Visualiser la version 12 du 13/12/2017 à 12:3
Visualiser la version 11 du 30/11/2017 à 13:5
Visualiser la version 10 du 30/11/2017 à 13:5
Visualiser la version 9 du 30/11/2017 à 13:49
Visualiser la version 8 du 29/11/2017 à 10:48
Visualiser la version 7 du 23/11/2017 à 17:34
Visualiser la version 6 du 23/11/2017 à 17:34
Visualiser la version 5 du 23/11/2017 à 17:15
Visualiser la version 4 du 23/11/2017 à 16:56
Visualiser la version 3 du 23/11/2017 à 16:55
Visualiser la version 2 du 23/11/2017 à 16:51
Visualiser la version 1 du 23/11/2017 à 14:03
Annuler
Couper
Copier
Coller

Cas des patients avec limite thérapeutique avant l'admission

Support Care Cancer (2006) 14: 167–171
DOI 10.1007/s00520-005-0845-0

ORIGINAL ARTICLE

Anne-Pascale Meert
Thierry Berghmans
Michel Hardy
Eveline Markiewicz
Jean-Paul Sculier

Non-invasive ventilation for cancer patients with life-support techniques limitation

Noninvasive Ventilation in Patients With Do-Not-Intubate and Comfort-Measures-Only Orders: A Systematic Review and Meta-Analysis*

Michael E. Wilson, MD[1,2]; Abdul M. Majzoub, MD[1]; Claudia C. Dobler, MD, PhD[3]; J. Randall Curtis, MD, MPH[4,5]; Tarek Nayfeh, MD[6]; Bjorg Thorsteinsdottir, MD[2,7,8]; Amelia K. Barwise, MB, BCh, BAO[1,8]; Jon C. Tilburt, MD, MPH[7,8]; Ognjen Gajic, MD, MSc[1]; Victor M. Montori, MD, MSc[3,6]; M. Hassan Murad, MD, MPH[2,6]

Objectives: To assess the effectiveness of noninvasive ventilation in patients with acute respiratory failure and do-not-intubate or comfort-measures-only orders.

Data Sources: MEDLINE, EMBASE, CINAHL, Scopus, and Web of Science from inception to January 1, 2017.

Study Selection: Studies of all design types that enrolled patients in the ICU or hospital ward who received noninvasive ventilation and had preset do-not-intubate or comfort-measures-only orders.

Data Extraction: Data abstraction followed Meta-analysis of Observational Studies in Epidemiology guidelines. Data quality was assessed using a modified Newcastle-Ottawa Scale.

Data Synthesis: Twenty-seven studies evaluating 2,020 patients with do-not-intubate orders and three studies evaluating 200 patients with comfort-measures-only orders were included. In patients with do-not-intubate orders, the pooled survival was 56% (95% CI, 49–64%) at hospital discharge and 32% (95% CI, 21–45%) at 1 year. Hospital survival was 68% for chronic obstructive pulmonary disease, 69% for pulmonary edema, 41% for pneumonia, and 37% for patients with malignancy. Survival was comparable for patients treated in a hospital ward versus an ICU. Quality of life of survivors was not reduced compared with baseline, although few studies evaluated this. No studies evaluated quality of dying in nonsurvivors. In patients with comfort-measures-only orders, a single study showed that noninvasive ventilation was associated with mild reductions in dyspnea and opioid requirements.

Conclusions: A large proportion of patients with do-not-intubate orders who received noninvasive ventilation survived to hospital discharge and at 1 year, with limited data showing no decrease in quality of life in survivors. Provision of noninvasive ventilation in a well-equipped hospital ward may be a viable alternative to the ICU for selected patients. Crucial questions regarding quality of life in survivors, quality of death in nonsurvivors, and the impact of noninvasive ventilation in patients with comfort-measures-only orders remain largely unanswered. (*Crit Care Med* 2018; 46:1209–1216)

Key Words: do-not-intubate; noninvasive ventilation; palliative care; quality of life

*See also p. 1367.

[1]Division of Pulmonary and Critical Care Medicine, Department of Medicine, Mayo Clinic, Rochester, MN.

[2]Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery, Mayo Clinic, Rochester, MN.

[3]Knowledge and Evaluation Research Unit, Mayo Clinic, Rochester, MN.

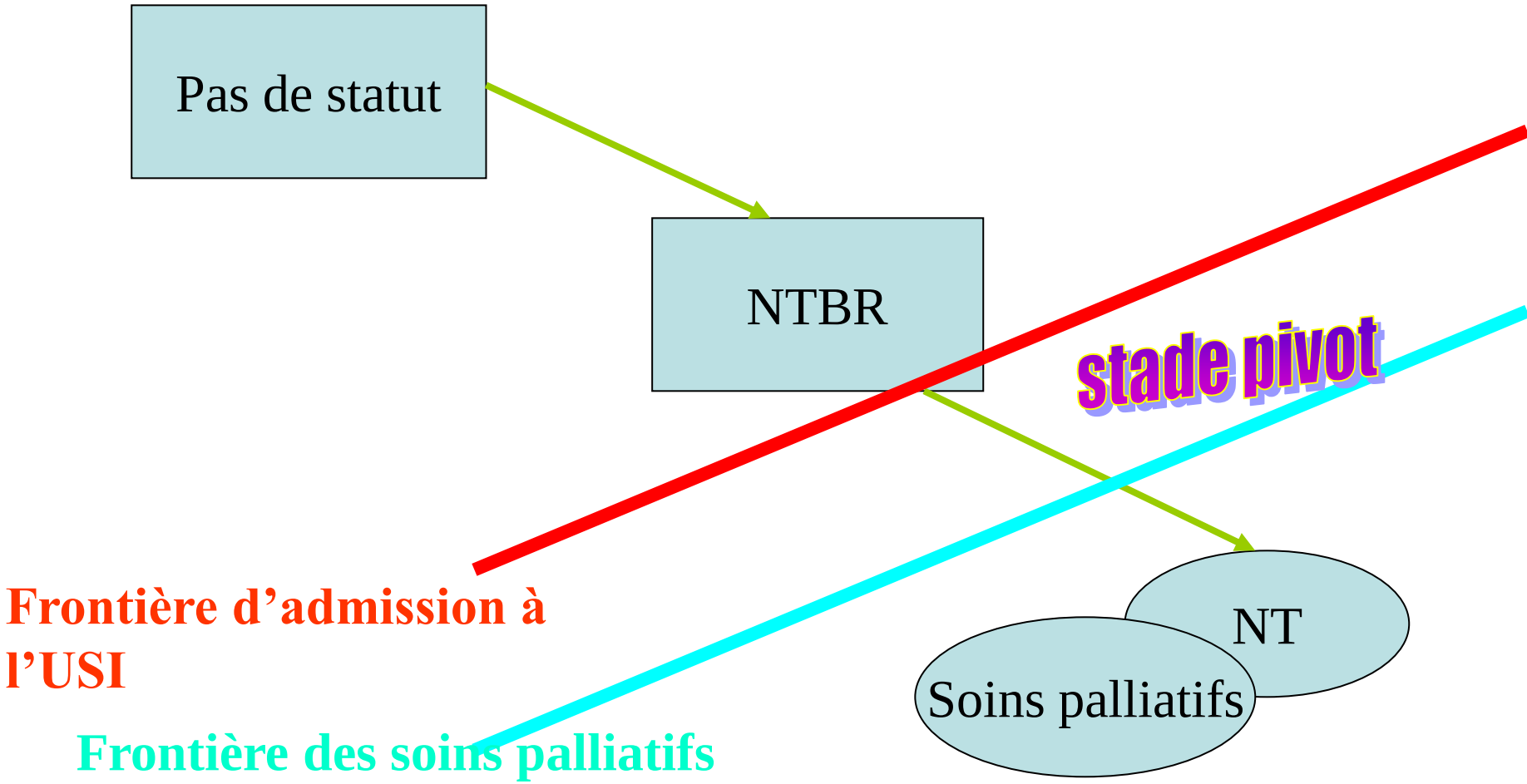
[4]Division of Pulmonary and Critical Care Medicine, Department of Medicine, Harborview Medical Center, University of Washington, Seattle, WA.

[5]Cambia Palliative Care Center of Excellence, University of Washington,

Cas des patients limites sans projet thérapeutique

- Stades pivots
- Discussion multidisciplinaire nécessaire

Le problème pratique = le stade pivot



Il faut savoir gérer cette phase

Le mieux = prise en charge intégrant

oncologie et réanimation

Les traitements expérimentaux

VOLUME 29 · NUMBER 26 · SEPTEMBER 10 2011

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Outcome Analyses After the First Admission to an Intensive Care Unit in Patients With Advanced Cancer Referred to a Phase I Clinical Trials Program

Siqing Fu, David S. Hong, Aung Naing, Jennifer Wheler, Gerald Falchook, Sijin Wen, Adrienne Howard, Diane Barber, Joseph Nates, Kristen Price, and Razelle Kurzrock

Table 1. Patient Demographics and Clinical Characteristics

Demographic or Clinical Characteristic	No. of Patients (N = 212)	%
Age, years		
Median	52	
Range	18-84	
Sex		
Women	102	48
Men	110	52
Race distribution		
White	148	70
African American	35	16
Hispanic	21	10
Others	8	4
APACHE II score at the initial ICU admission		
Median	18	
Range	2-43	
Best ECOG performance status before the initial ICU admission		
0 or 1	137	64
2	63	30
≥ 3	12	6
Received status of phase I therapy before the initial ICU admission	166	78
Presence of advance directives before the initial ICU admission	87	41
Presence of out-of-hospital orders for DNR	8	4
Presence of inpatient orders for DNR at the initial ICU admission	19	9
Interventional modality		
Surgical intervention	51	24
Nonsurgical intervention	161	76
Noninvasive critical care	114	
Mechanical ventilation only	40	
Cardiopulmonary resuscitation	7	

Abbreviations: APACHE II , Acute Physiology and Chronic Health Evaluation II; DNR, do not resuscitate; ECOG, Eastern Cooperative Oncology Group; ICU, intensive care unit.

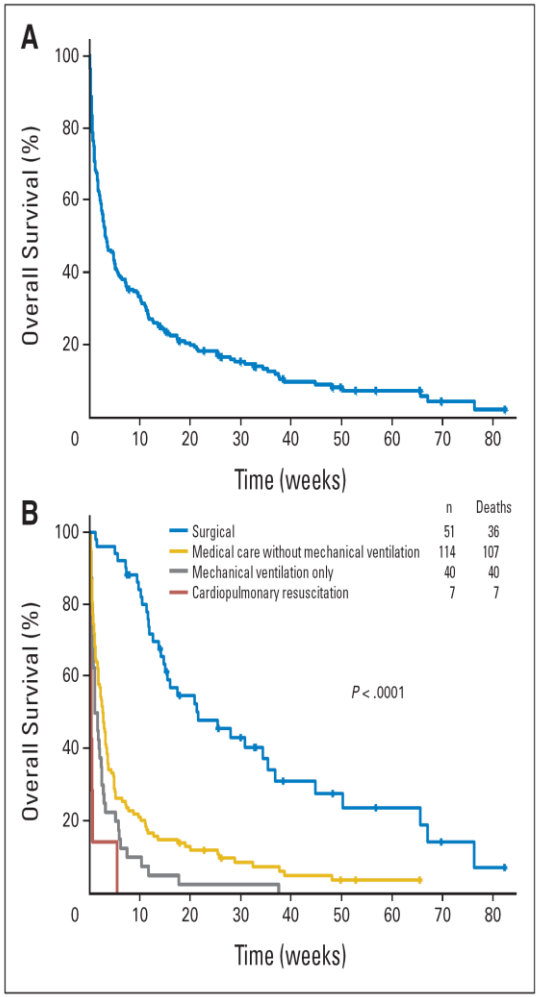


Fig 1. Kaplan-Meier curves indicating survival in patients with advanced cancer referred to phase I care from the initial admission for critical care to death. (A) Overall survival for 212 patients from the first admission to an intensive care unit to death. A total of 190 deaths were observed with median survival of 3.2 weeks. 95% CI for the median survival ranged from 2.5 to 4.9 weeks. (B) Kaplan-Meier survival curve showing a significant difference among four groups of patients with phase I cancer ($P < .0001$, log-rank test): patients admitted for postsurgical intervention with median survival of 21.5 weeks; patients admitted for medical care without mechanical ventilation with median survival of 2.5 weeks; patients admitted for mechanical ventilation without cardiopulmonary resuscitation with median survival of 6 days; and patients admitted for cardiopulmonary resuscitation with median survival of 1 day. The 12-week survival rates were 72% (surgical), 17% (medical care without mechanical ventilation), 5% (mechanical ventilation only), and 0% (cardiopulmonary resuscitation).

Table 4. Multivariate Analyses of Overall Survival by the Cox Regression Model

Potential Risk Factor for Worse Survival	Effect	SE	Hazard Ratio	*P*
Men	0.031	0.152	1.031	.840
Nonwhite	0.308	0.166	1.361	.064
Nonsurgical intervention	1.254	0.222	3.504	< .0001
Best ECOG performance (> 2)	0.585	0.320	1.795	.067
APACHE II score (≥ 18)	0.411	0.160	1.508	.010
Hypoalbuminemia	0.408	0.187	1.504	.029
Hyperbilirubinemia	0.075	0.205	1.078	.710
High lactate dehydrogenase	0.151	0.181	1.163	.400
Thrombocytosis	0.199	0.289	1.221	.490
Thromboembolism	0.225	0.163	1.252	.170
Intermediate- or high-grade histology	0.288	0.204	1.334	.160
Brain metastasis	0.131	0.193	1.140	.500
Liver metastasis	−0.119	0.162	0.888	.460
Phase I therapy not received	0.268	0.184	1.308	.140
Code status (full code)	0.434	0.277	1.543	.120

Abbreviations: APACHE II, Acute Physiology and Chronic Health Evaluation II; ECOG, Eastern Cooperative Oncology Group.

Cas des patients avec limite thérapeutique décidée après l'admission

Le statut en réanimation

Palliative Care & Medicine

Meert et al., J Palliative Care Med 2012, 2:3
http://dx.doi.org/10.4172/2165-7386.1000107

Research Article Open Access

Causes of Death and Incidence of Life-support Techniques Limitations in Oncological Patients Dying in the ICU: A Retrospective Study

Anne-Pascale Meert*, Séverine Dept, Thierry Berghmans and Jean-Paul Sculier

Department of Intensive Care and Thoracic Oncology and Jules Bordet Institute, Centre of tumors of the Free University of Brussels (ULB), Brussels, Belgium

Sex (male/female)	38/33
Median age (min-max)	57 years (19-85)
Median SAPS II (min-max)	47 (24-98)
Type of cancer	46 solid tumour (64.8%) – 19 lung cancers (18 NSCLC + 1 SCLC) – 6 breast cancers – 6 digestive tumours – 5 gynaecologic cancers – 4 urologic cancer – 4 head and neck cancers – 1 melanoma – 1 sarcoma 25 haematological tumours (35.2%) – 14 acute leukemia – 7 lymphoma – 3 chronic leukemia – 1 myelodysplastic syndrome
Cancer phase	Diagnostic: 3 (4.2%) Curative: 8 (11.3%) Control: 52 (73.2%) Pivotal: 8 (11.3%)

NSCLC= non small cell lung cancer; SCLC=small cell lung cancer

Table 1: Patients characteristics.

Total number of admission	**71**	
Respiratory	**26 (36.6%)**	**21 infectious pneumonia** 1 alveolar haemorrhage 1 haemothorax 1 pneumothorax 1 bronchospasme 1 tumoral obstruction
Haemodynamic	13 (18.3%)	**7 septic shock** 3 hypovolemic shock **2 severe sepsis** 1 obstructive shock
Renal	8 (11.3%)	8 acute renal failure
Heart	6 (8.4%)	3 arrhythmia 2 pericardial effusion 1 syncope
Neurological	6 (8.4%)	**2 meningitis** 1 coma 1 status epilepticus 1 stroke 1 cerebral haemorrhage
Digestive	6 (8.4%)	3 hepatic failure **2 peritonitis** 1 bowel perforation
Metabolic	5 (7%)	3 tumoural lysis syndrome 1 hyperkaliemia 1 hypokaliemia
Haematological	1 (1.4%)	1 complicated disseminated intravascular coagulation

Infectious causes are in bold

Table 2: Patients admission causes.

Statut

- A l' admission :
  - Non: 59 patients (83,1%)
  - Oui: 12 (16,9%) par progression du cancer
- Au cours du séjour à l'USI:
  - Oui : 42
    - 9 au cours des 24 1ères heures (6 par progression du cancer)
    - 33 patients plus tard (26 par évolution péjorative de la complication aiguë)

Patients admis sans statut

- 17 : morts sans statut
  - 76% hémopathie maligne et 24% tumeur solide ($p<0,001$).
  - Tous morts sous ventilation mécanique invasive
    - 47% : pas de RCP
- 23 : statut avant intubation
- 19 : statut sous VMI
  - 79% par mauvaise évolution de la complication aiguë

Les grandes catégories de motifs d'admission

Principes et règles de la prise en charge

La recouvrance et les soins postopératoires

La problématique

Identification et traitement de complications potentielles, liées à

- des facteurs de risque
- des événements peropératoires

en fait bien souvent les mêmes que pour les affections non néoplasiques et n'ont donc rien de spécifiques car liées plus au traumatisme de l'intervention qu'à l'affection sous-jacente

Avantages apportés par l'USI

- Surveillance de l'état cardio-vasculaire et respiratoire (monitoring)
- Disposition immédiate des techniques de réanimation notamment respiratoire (ventilateurs)
- Compétence élevée du personnel infirmier apte à identifier précocement toute complication
- Possibilité de poursuivre certaines techniques de support vital mises en route au cours de l'opération

Available online at www.sciencedirect.com

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EJSO 39 (2013) 584–592

EJSO
the Journal of Cancer Surgery

www.ejso.com

Outcomes of Intensive Care Unit admissions after elective cancer surgery

M.M.E.M. Bos [a], F. Bakhshi-Raiez [b], J.W.T. Dekker [c], N.F. de Keizer [b], E. de Jonge [d,*]

[a] *Reinier de Graaf Hospital, Department of Internal Medicine, Division of Medical Oncology, Delft, The Netherlands*
[b] *Academic Medical Center, Department of Medical Informatics, University of Amsterdam, Amsterdam, The Netherlands*
[c] *Reinier de Graaf Hospital, Department of Surgery, Delft, The Netherlands*
[d] *Leiden University Medical Center, Department of Intensive Care, PO Box 9600, 2300 RC Leiden, The Netherlands*

Accepted 6 February 2013
Available online 11 March 2013

28973 admissions entre janvier 2007 et janvier 2012

Table 1
Demographics.

	All patients	Colorectal cancer surgery	Thoracotomy for lung cancer	CNS surgery for neoplasm	Bladder cancer surgery	Esophageal cancer surgery	Renal cancer surgery	Pancreatic-cholangio cancer surgery	Head and neck cancer surgery	Female cancer surgery[a]	Male cancer surgery[b]	Other types of cancer
Number of patients	28,973	7404	5358	4157	2261	2017	1348	987	888	592	707	3254
(%)	100	25.6	18.5	14.3	7.8	7.0	4.7	3.4	3.1	2.0	2.4	11.2
Gender (female) (%)	40	43	38	52	26	22	37	43	32	100	–	41
Planned admission (%)	77	68	80	89	79	84	73	73	82	61	64	80
Age (years)												
Median	67	74	66	57	68	64	68	67	63	68	67	67
Interquartile Ranges	59–75	65–80	59–72	46–66	62–74	58–71	60–75	60–73	56–71	58–77	62–72	58–75
Chronic comorbid disease (%)												
Chronic Obstructive Pulmonary Disease	10.6	11.4	20.0	3.1	7.8	9.8	10.2	6.6	11.8	10.1	9.9	7.0
Chronic renal insufficiency (+dialysis)	2.4	3.5	1.0	0.7	3.6	0.9	7.1	1.7	2.1	3.9	3.0	1.8
Heart failure	2.6	4.7	1.9	0.9	1.1	1.9	3.2	1.2	0.8	5.6	2.8	2.3
Cerebrovascular Accident	0.9	1.1	0.8	1.4	0.7	0.3	0.7	0.4	0.7	0.7	0.6	0.9
Immunodeficiency	9.9	12.1	5.7	6.4	6.4	22.4	5.6	2.2	9.6	9.6	3.8	16.8
Cirrhosis	0.4	0.5	0.3	0.1	0.3	0.6	0.2	0.5	1.1	0.5	0.1	0.8
Diabetes	11.1	15.1	8.1	5.8	10.4	11.8	14.5	19.6	8.6	13.5	9.5	10.8

[a] Includes surgery for prostate cancer, testicular cancer (<3% of all patients in this group).
[b] Includes surgery for breast cancer, ovarian cancer, endometrial cancer, cervical cancer, vaginal cancer.

M.M.E.M. Bos et al. / EJSO 39 (2013) 584–592

77 % admissions planifiées avant l'admission
Mortalité globale à l'USI: 1,4%
Durée médiane de séjour à l'USI: 0,9 j

Table 2
Morbidity, mortality and length of stay.

	All patients	Colorectal cancer surgery	Thoracotomy for lung cancer	Central nervous system surgery for neoplasm	Bladder cancer surgery	Esophageal cancer surgery	Renal cancer surgery	Pancreatic-cholangio cancer surgery	Head and neck cancer surgery	Female cancer surgery	Male cancer surgery	Other types of cancer
Number of patients	28,973	7404	5358	4157	2261	2017	1348	987	888	707	592	3254
Acute comorbidity[a] (%)												
Confirmed infection	2.1	3.3	1.5	0.4	1.3	2.8	2.2	3.3	1.8	1.7	2.0	1.9
Pneumonia	0.5	0.8	0.5	0.1	0.2	0.9	0.5	0.4	0.9	0.1	0.2	0.5
Sepsis	0.7	1.3	0.2	0.0	0.9	0.6	0.7	1.9	0.3	1.0	1.0	0.5
Cardiac dysrhythmia	3.0	5.0	2.5	1.4	1.9	2.9	4.3	2.0	1.5	2.7	4.6	2.4
Acute renal failure	1.2	1.6	0.4	0.1	1.6	0.6	5.0	1.2	0.2	2.8	1.4	1.2
Mechanical ventilation	24.8	22.1	12.5	23.1	18.2	62.5	21.8	35.1	50.2	15.7	23.8	27.6
Vasopressors	20.7	25.7	12.6	7.5	23.5	41.8	23.5	23.5	19.0	17.3	25.0	22.7
APACHE IV score												
Mean	44.3	50.1	41.0	33.6	45.7	46.5	48.6	49.5	42.4	42.9	46.8	45.3
Standard deviation	18.5	19.5	15.3	17.2	16.0	17.2	19.0	19.6	16.2	17.2	18.1	18.3
ICU length of stay (days)												
Median	0.9	0.9	0.9	0.9	0.9	2.0	0.9	0.9	0.9	0.9	0.9	0.9
Interquartile ranges	0.8–1.5	0.8–1.8	0.8–1.0	0.8–0.9	0.8–1.0	1.0–4.8	0.8–1.2	0.8–1.9	0.7–1.7	0.8–1.0	0.8–1.1	0.8–1.7
Hospital length of stay (days)												
Median	12	13	10	8	16	15	9	17	17	7	9	12
Interquartile ranges	8–19	9–22	8–14	6–12	13–22	11–24	7–14	12–28	11–25	5–13	6–16	8–19
Mortality												
ICU (%)	1.4	2.2	0.8	0.7	0.5	1.8	1.2	2.0	1.0	0.8	1.3	1.9
Hospital (%)	4.7	8.0	3.0	2.2	2.9	5.0	3.8	7.6	3.3	1.5	3.0	5.6
APACHE IV SMR[b]	0.7	0.7	0.5	0.6	1.3	0.5	1.2	0.7	1.1	0.6	0.6	0.6
95% confidence interval	0.6–0.7	0.6–0.8	0.4–0.6	0.5–0.8	1.0–1.6	0.4–0.7	0.9–1.5	0.6–0.9	0.7–1.6	0.3–1.1	0.3–0.9	0.6–0.7

[a] Registered within 24 h of admission.
[b] Standardized mortality ratio.

Table 3
Mortality risk by type of cancer surgery (multivariate analysis).

	Odds ratio (Standard deviation)	
Colorectal cancer surgery	1.41	(1.23−1.60) *
Thoracotomy for lung cancer	0.82	(0.69−0.98) *
Central Nervous System surgery for neoplasm	0.86	(0.68−1.09)
Bladder cancer surgery	0.57	(0.44−0.74) *
Esophageal cancer surgery	1.14	(0.91−1.43)
Renal cancer surgery	0.61	(0.45−0.83) *
Pancreatic − Cholangio cancer surgery	1.60	(1.20−2.04) *
Head and Neck cancer surgery	0.84	(0.56−1.26)
Female cancer surgery	0.60	(0.36−1.01)
Male cancer surgery	0.27	(0.14−0.53) *
Other types of cancer	1.24	(1.03−1.47) *

Odds ratio for mortality risk by type of cancer surgery as compared with cancer patients with other types of surgery. Multivariate analysis including age, gender and APACHE IV score.
*$P < 0.05$.

Table 4
Annual number of patients per cancer diagnosis and proportion admitted to the ICU.

	Average number of patients per year diagnosed with different types of cancer in the Netherlands between 2007 and 2010 ref. [18]	Patients admitted to the ICU for post-operative care per year (%)[a]	
Colorectal cancer	12,296	1851	(15.1)
Lung cancer	11,612	1340	(11.5)
Central nervous system neoplasm	1167	1039	(89.0)
Bladder cancer	3208	565	(17.6)
Esophageal cancer	2403	504	(20.1)
Renal cancer	2079	337	(16.2)
Pancreatic − Cholangio cancer	2520	247	(9.8)
Head and neck cancer	2815	222	(7.9)
Female cancer	4362	148	(3.4)
Male cancer	10,838	177	(1.6)
All types of cancer	91,428	7243	(7.9)

[a] Based on 80% of the ICU-beds participating in the NICE registry.

Cancer vs pas cancer

JAMA Surgery | Original Investigation

Characteristics and Outcomes of Surgical Patients With Solid Cancers Admitted to the Intensive Care Unit

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IMPORTANCE Within the surgical population admitted to intensive care units (ICUs), cancer is a common condition. However, clinicians can be reluctant to admit patients with cancer to ICUs owing to concerns about survival.

OBJECTIVE To compare the clinical characteristics and outcomes of surgical patients with and without cancer who are admitted to ICUs.

JAMA Surg. doi:10.1001/jamasurg.2018.1571
Published online June 27, 2018.

Table 1. Surgical Admissions to ICU in Patients With and Without Cancer[a]

Variable	All Patients			Patients Who Received Organ Support		
	Noncancer (n = 19 555)	Cancer (n = 5462)	*P* Value	Noncancer (n = 13 046)	Cancer (n = 3165)	*P* Value
Men, No. (% [95% CI])	10 696 (54.7 [54.0-55.4])	3201 (58.6 [57.3-59.9])	<.001	7312 (56.0 [55.2-56.9])	1941 (61.3 [59.6-63.0])	<.001
Median age (IQR), y	62 (45-74)	68 (60-76)	<.001	63 (46-74)	68 (60-76)	<.001
Emergency hospitalization, No./No. (% [95% CI])	15 255/18 979 (80.2 [79.6-80.8])	2128/5389 (39.5 [38.2-40.8])	<.001	10 892/12 680 (85.9 [85.3- 86.5])	1299/3128 (41.5 [39.8-43.3])	<.001
Admitted from surgical theater, No. (% [95% CI])	12 026 (61.5 [60.8-62.2])	4375 (80.1 [79.1-81.2])	<.001	7436 (57.0 [56.2-57.9])	2329 (73.6 [72.1-75.2])	<.001
ICU mortality, No. (% [95% CI])	3295 (16.8 [16.3-17.4])	666 (12.2 [11.3-13.1])	<.001	3066 (23.5 [22.8-24.2])	588 (18.6 [17.2-19.9])	<.001
Hospital mortality, No. (% [95% CI])	5490 (28.1 [27.4-28.7])	1252 (22.9 [21.8-24.1])	<.001	4693 (36.0 [35.1-36.8])	993 (31.4 [29.8-22.0])	<.001

Table 2. Frequency of Tumor Types in the Surgical ICU Population and Short-term Mortality

Cancer Type	Surgical ICU Cohort, No. (%)	Mortality, % (95% CI)	
		ICU	Hospital
Colorectal	2414 (44.2)	11.6 (10.3-12.9)	21.9 (20.2-23.6)
Head and neck	610 (11.2)	5.6 (3.9-7.7)	11.0 (8.6-13.7)
Stomach	419 (7.7)	10.7 (7.9-14.1)	22.0 (18.1-26.2)
Esophagus	355 (6.5)	8.5 (5.8-11.8)	17.7 (13.9-22.1)
Kidney	230 (4.2)	9.6 (6.1-14.1)	15.2 (10.8-20.5)
Lung	220 (4.0)	35.9 (29.6-42.6)	51.4 (44.6-58.1)
Bladder	172 (3.1)	7.0 (3.7-11.9)	26.7 (20.3-34.0)
Ovary	130 (2.4)	14.6 (9.0-21.9)	29.2 (21.6-37.8)
Prostate	102 (1.9)	8.8 (4.1-16.1)	21.6 (14.0-30.8)
Uterus	102 (1.9)	10.8 (5.5-18.5)	16.7 (10.0-25.3)
Breast	99 (1.8)	15.2 (8.7-23.8)	22.2 (14.5-31.7)
Pancreas	72 (1.3)	25.0 (15.5-36.6)	47.2 (35.3-59.3)
Liver	56 (1.0)	32.1 (20.3-46.0)	58.9 (45.0-71.9)
Small intestine	50 (0.9)	14.0 (5.8-26.7)	32.0 (19.5-26.7)
Thyroid	24 (0.4)	4.2 (1.1-21.1)	8.3 (1.0-27.0)
Testis	16 (0.3)	18.8 (4.0-45.6)	18.8 (4.0-45.6)
Mesothelioma	13 (0.2)	23.1 (5.0-53.8)	46.2 (19.2-74.9)
Melanoma	11 (0.2)	0 (0-28.5)[a]	18.2 (2.3-51.8)
Other	95 (1.7)	12.6 (6.7-21.0)	25.3 (16.9-35.2)
Unknown	82 (1.5)	39.0 (28.4-50.4)	68.3 (57.1-78.1)
Multiple	190 (3.5)	8.9 (5.3-13.9)	17.4 (12.3-23.5)
Total	5462 (100)	12.2 (11.3-13.1)	22.9 (21.8-24.1)

Les mortalités à l'USI et hospitalière étaient plus faibles pour le groupe cancéreux : 12,2% (IC à 95%, 11,3% -13,1%) vs 16,8% (IC à 95%, 16,3% - 17,4%) (P <0,001) et 22,9% (IC à 95%, 1,8% - 24,1%) vs 28,1% (27,4% -28,7%) (p <0,001).

Table 4. Multivariate Logistic Regression for Hospital Mortality

Variable	Univariate OR (95% CI)	*P* Value	Multivariate OR (95% CI)	*P* Value
Cancer	0.76 (0.71-0.82)	<.001	1.09 (1.00-1.19)	.048
Age, y				
<65	1 [Reference]		1 [Reference]	
≥65	2.28 (2.15-2.42)	<.001	2.14 (2.01-2.29)	<.001
Hospitalization				
Elective	1 [Reference]		1 [Reference]	
Emergency	2.66 (2.47-2.86)	<.001	2.86 (2.62-3.12)	<.001
Admit from				
Surgical theater	0.43 (0.41-0.46)	<.001	0.53 (0.49-0.56)	<.001
Other	1 [Reference]		1 [Reference]	
Reason for admission				
Malignancy[a]	0.40 (0.36-0.46)	<.001	NA	
Sepsis	2.06 (1.91-2.22)	<.001	1.42 (1.30-1.55)	<.001
Other	1 [Reference]		1 [Reference]	
APACHE II score				
<20	1 [Reference]		1 [Reference]	
≥20	6.35 (5.94-6.80)	<.001	4.67 (4.34-5.01)	<.001
Unknown	1.49 (1.38-1.61)	<.001	1.46 (1.34-1.59)	<.001
ICU admission year				
2000-2003	1.35 (1.25-1.45)	<.001	1.46 (1.34-1.58)	<.001
2004-2007	1.15 (1.07-1.24)	<.001	1.20 (1.10-1.31)	<.001
2008-2011	1 [Reference]		1 [Reference]	

Abbreviations: APACHE, Acute Physiology and Chronic Health Evaluation (higher scores indicate increased severity of illness and corresponding mortality); ICU, intensive care unit; NA, not applicable; OR, odds ratio.

Les recommandations pour la chirurgie thoracique oncologique

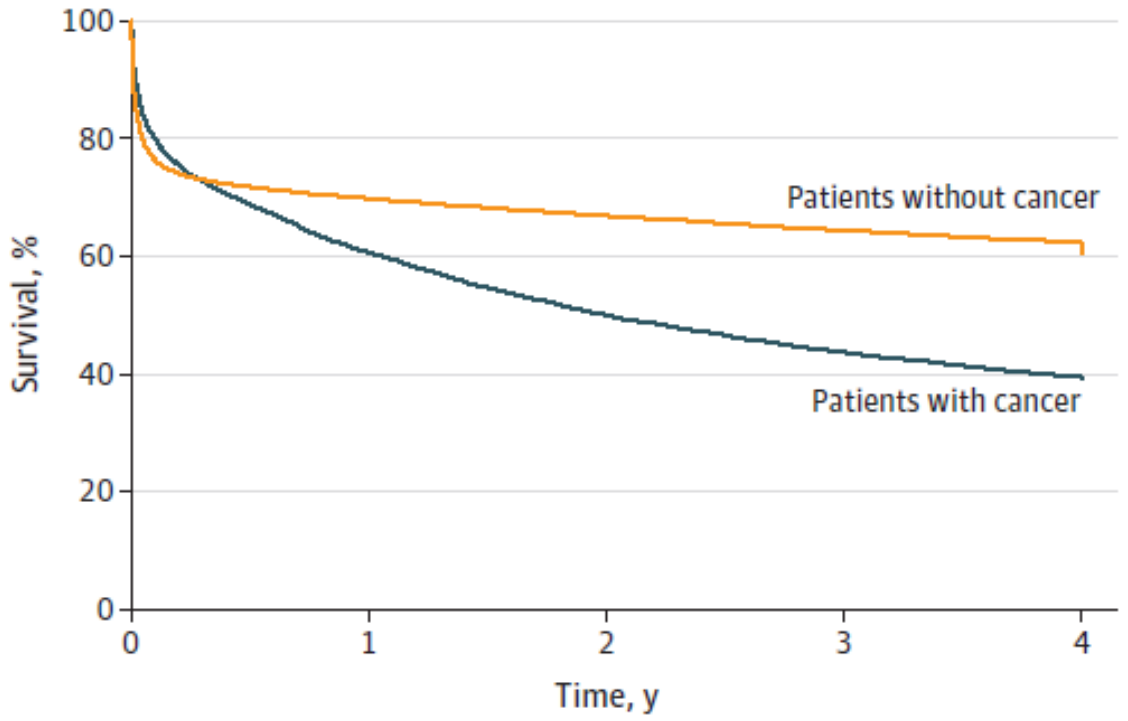
Eur Respir J 2009; 34: 17–41
DOI: 10.1183/09031936.00184308

ERS/ESTS TASK FORCE

ERS/ESTS clinical guidelines on fitness for radical therapy in lung cancer patients (surgery and chemo-radiotherapy)

A. Brunelli*, A. Charloux*, C.T. Bolliger, G. Rocco, J-P. Sculier, G. Varela, M. Licker, M.K. Ferguson, C. Faivre-Finn, R.M. Huber, E.M. Clini, T. Win, D. De Ruysscher and L. Goldman on behalf of the European Respiratory Society and European Society of Thoracic Surgeons joint task force on fitness for radical therapy

Figure. Survival Analysis of Patients With and Without Cancer Following Surgical Intensive Care Unit Admission

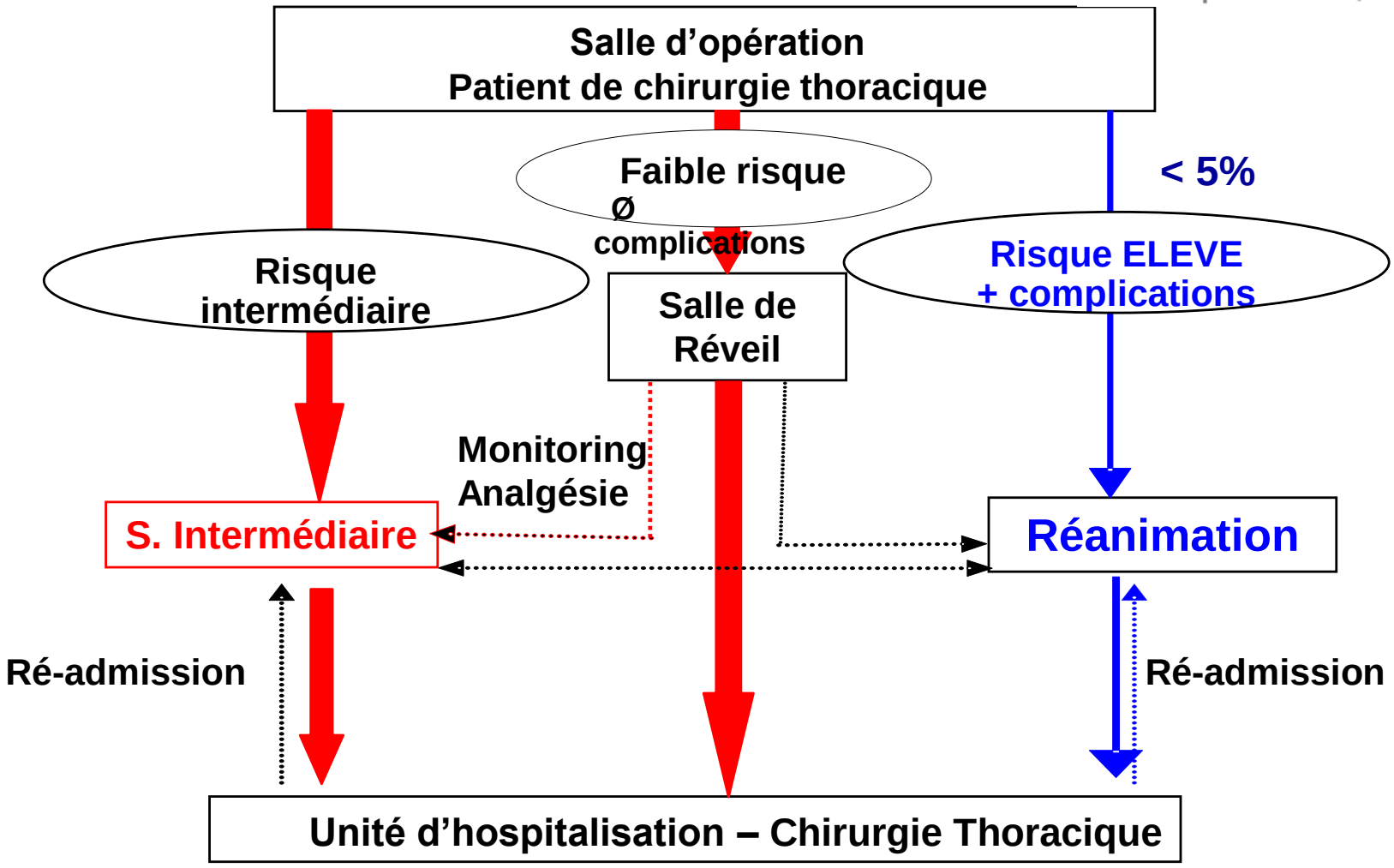


No. at risk					
Cancer	5456	3305	2728	2384	2154
No cancer	19542	13636	13069	12590	12195

There was a statistically significant difference in survival by log-rank test ($P < .001$).

Admission du patient thoracique en Réanimation, à l'étage ou aux Soins intermédiaires ?

Eur Respir J 2009; 34: 17–41



ERS/ESTS clinical guidelines on fitness for radical therapy in lung cancer patients

Table 2. Mortality Rates According to Type of Pulmonary Resections

Type of resections	No. of resections	30-day mortality		In-hospital mortality	
		No. of deaths	Mortality (%)	No. of deaths	Mortality (%)
Pneumonectomy	355	11	3.1[a]	21	5.9[a]
Lobectomy	2,594	9	0.3[b]	34	1.3[b]
Segmentectomy or less	321	1	0.3	3	0.9
Total	3,270	21	0.6	58	1.8

[a] $p < 0.0001$ versus segmentectomy or less group; [b] p = NS versus segmentectomy or less group.

Médiastin déséquilibré post-thoracotomie (pneumectomie)

En résumé

	Lobectomie	*Pneumonectomie*
Mortalité	*2%*	*7%*
<u>Complications précoces</u>		
- *équilibration du médiastin*		++
- *arythmie superventriculaire*		++
- *œdème pulmonaire lésionnel*		*10%*
- *saignement et caillotage de la cavité*		+
- *défaut de rexpansion pulmonaire*	+	
<u>Complications plus tardives</u>		
- *surinfections bronchiques*	+	++
- *embolie pulmonaire*		*très grave*
- *hypoxie par réouverture de foramen ovale*		*rare*
- *empyème avec fistule bronchique*		*très grave*
- *empyème sans fistule bronchique*		+
- *atélectasie par encombrement*	++	
- *bullage prolongé*	++	

Les complications médicales du cancer et de son traitement

Caractéristiques

- Spectre différent des complications et problèmes rencontrés
- Spécificité propre de certaines pathologies
- Existence d'une maladie sévère sous-jacente

Le cancer sous-jacent

- Source de fragilité (« terrain »):

- immunosuppression
- neutropénie
- troubles de l'hémostase
- dissémination métastatique
- syndromes paranéoplasiques

- A la base du pronostic à moyen et long termes

L'abord thérapeutique

Le traitement devra intégrer:

1. les soins intensifs de support et le traitement spécifique pour la complication
2. le traitement anticancéreux de fond
3. le traitement de support des complications du traitement anticancéreux

(! mauvais indice de performance du patient de réanimation)

Intensive Care Med (2006) 32:93–99
DOI 10.1007/s00134-005-2836-5

ORIGINAL

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Outcome in severely ill patients with hematological malignancies who received intravenous chemotherapy in the intensive care unit

Clinical Investigations

Intensive care in patients with newly diagnosed malignancies and a need for cancer chemotherapy*

Michael Darmon, MD; Guillaume Thiery, MD; Magali Ciroldi, MD; Sandra de Miranda, MD; Lionel Galicier, MD; Emmanuel Raffoux, MD; Jean-Roger Le Gall, MD; Benoît Schlemmer, MD; Élie Azoulay, MD, PhD

(Crit Care Med 2005; 33:2488–2493)

Urgent Chemotherapy for Life-Threatening Complications Related to Solid Neoplasms

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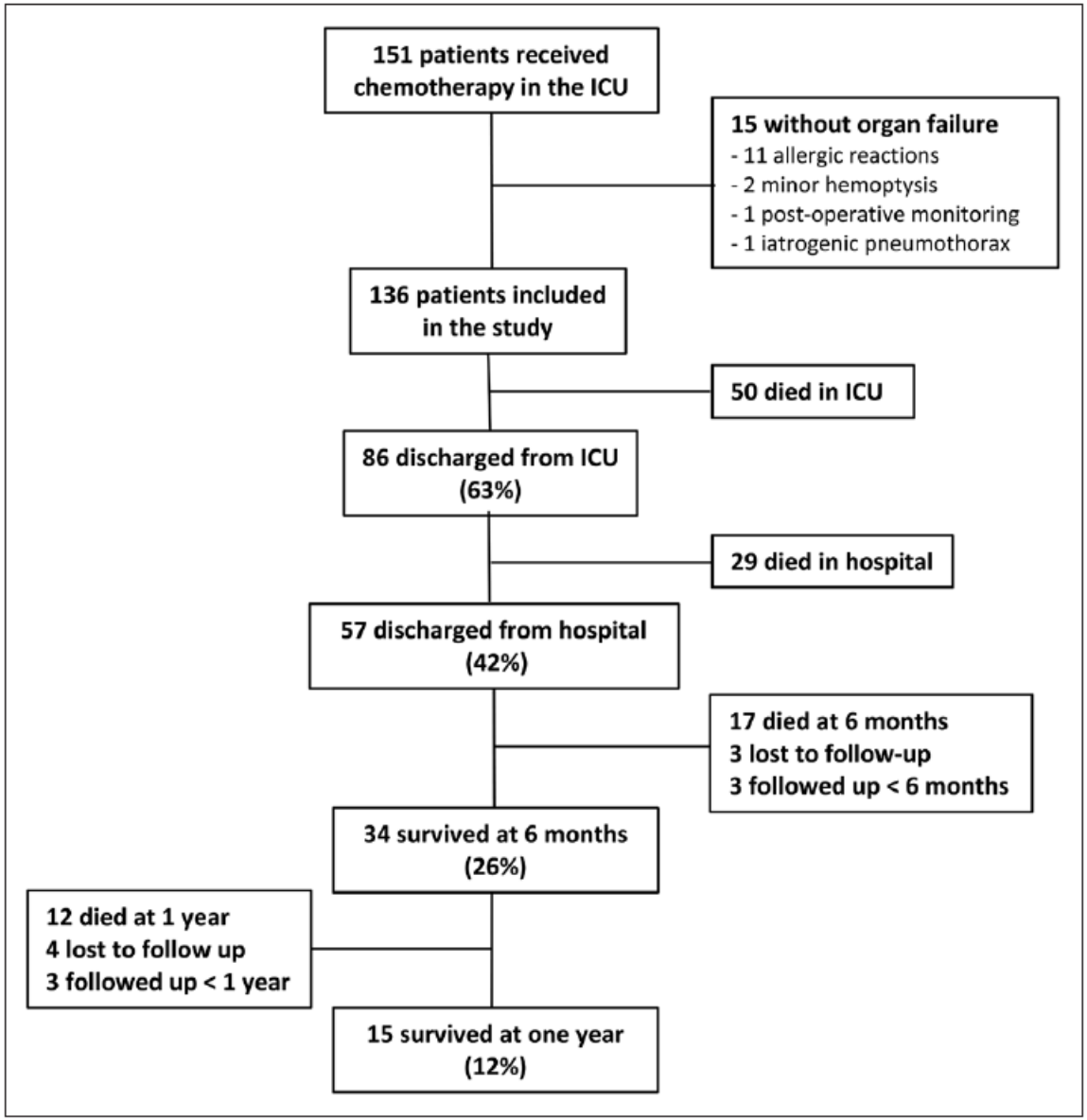

Figure 1. Flowchart of the study.

2001-2015

TABLE 3. Characteristics of the 15 One-Year Survivors

Case No.	Age (Yr)	Gender	Type of Cancer	First Presentation	Metastatic	Reason for ICU Admission
1	54	Female	Adrenocortical carcinoma	Yes	Yes	Acute respiratory failure
2	57	Male	SCLC	No	Yes	Acute respiratory failure
3	32	Male	Gastric adenocarcinoma	No	Yes	Thrombotic microangiopathy
4	65	Female	SCLC	No	No	Acute respiratory failure
5	53	Male	SCLC	No	No	Opsonus myoclonus syndrome
6	50	Female	Lung adenocarcinoma	No	No	Acute respiratory failure
7	36	Female	Thymic neuroendocrine carcinoma	No	No	Acute respiratory failure
8	55	Male	SCLC	No	Yes	Acute respiratory failure
9	31	Male	Lung adenocarcinoma	No	No	Acute respiratory failure
10	34	Female	Breast carcinoma	No	Yes	Severe sepsis
11	20	Male	Mediastinal choriocarcinoma	No	Yes	Acute respiratory failure
12	33	Female	Sarcoma	No	Yes	Acute respiratory failure
13	22	Male	Germinal non-seminomatous	No	No	Acute respiratory failure
14	68	Female	SCLC	No	No	Acute respiratory failure
15	65	Female	Breast carcinoma	Yes	Yes	Acute respiratory failure

IMV = invasive mechanical ventilation, NIV = noninvasive ventilation, SCLC = small cell lung cancer.

Chemotherapy	Instrumental Procedures	Admission Sequential Organ Failure Assessement Score	Life-Supporting Therapy
Carboplatine, etoposide	0	4	0
Carboplatine, etoposide	0	8	IMV
5-Fluorouracil, oxaliplatine	0	3	0
Carboplatine, etoposide	0	3	IMV
Cisplatine, etoposide	0	3	IMV
Cyclophosphamide, cisplatine, etoposide	0	3	0
Paclitaxel, carboplatine	0	1	0
Cisplatine, etoposide, ifosfamide	Arterial embolization	3	IMV
Carboplatine, paclitaxel, bevacizumab	0	3	NIV
Doxorubicine, cyclophosphamide	0	1	0
Cisplatine, etoposide	Pleural draining	1	0
Doxorubicine, ifosfamide	Pleural draining	1	IMV
Cisplatine, etoposide, bleomycine	Pleural draining	1	0
Carboplatine, etoposide	0	1	NIV
Paclitaxel	Pleural draining	2	0

ACTA CLINICA BELGICA
https://doi.org/10.1080/17843286.2020.1870854

Initiation of a new anti-cancer medical treatment in ICU: a retrospective study

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ABSTRACT

Purpose: The purpose of our study is to evaluate the characteristics of patients whose medical anti-cancer treatment has been initiated at the ICU and to release prognostic factors for hospital mortality in these patients.

Material and Methods: We analyzed retrospectively all the records of cancer patients admitted between 01/01/2007 and 31/12/2017 in our ICU and for whom a new anti-cancer medical treatment was initiated during their ICU stay.

Results: Our study includes 147 patients, 78 men (53%) and 69 women (47%), with a median age of 58 years. Eighty patients (54%) had a solid tumor and 67 (46%) a hematological malignancy. ICU mortality was 23% and hospital mortality 32%. The poor prognostic factors for hospital mortality were: higher SOFA, higher Charslon comorbidity index and the presence of a therapeutic limitation (introduced at the time of admission or within 24 hours of admission to the ICU). One-year survival for patients who survived hospital stay was 37% (17% for those with a solid tumor and 61% for the ones with a hematological malignancy).

Conclusion: Initiation of an anti-cancer medical treatment is feasible and can lead to good 1 year survival rate, especially for those with a hematological tumor.

KEYWORDS

ICU; critically ill; anti-cancer treatment; chemotherapy

Table 1. Initiation reason for the anti-cancer medical treatment.

Treatment initiation reason	Number
Respiratory	47
Respiratory failure due to the neoplasia	34
Respiratory failure due to the leukostase	8
Thromboembolic pathology	5
Haemotological	41
Hyperleukocytosis	28
Medullary aplasia	9
Paraneoplasic macrophage activation syndrome	2
Spontaneous tumor lysis syndrome	1
Disseminated intravascular coagulopathy	1
Cardiovascular	29
Pericardial effusion	12
Arrhythmia	7
Obstructive shock/septic shock/sepsis	6
Superior vena cava syndrome	4
Metabolic	12
Paraneoplasic cushing syndrome	5
Schwartz-Bartter's syndrome	4
Lactic metabolic acidosis	3
Hepatic	12
Hepatic failure due to metastatic infiltration	12
Neurological	4
Epileptic seizure	4
Renal	2
Acute renal failure due to multiple myeloma	1
Acute renal failure post-renal	1

Table 2. Side effects (all grades) attributable to the medical anti-cancer treatment in ICU.

Side effects	Number
Blood and lymphatic system disorders	62
Anemia	41
Febrile neutropenia	29
Other	3
Nervous system disorders	18
Peripheral motor/sensory neuropathy	13
Somnolence	3
Syncope	2
Encephalopathy	2
Other	1
Metabolism and nutrition disorders	11
Tumor lysis syndrome	10
Hyperuricemia	2
Renal and urinary disorders	7
Acute kidney injury	7
Gastrointestinal disorders	7
Vomiting	6
Nausea	2
Diarrhea	2
Esophagitis	2
Other	1
Immune system disorders	5
Allergic reaction	4
Other	1
Skin and subcutaneous tissue disorders	3
Rash maculo-papular	3
Respiratory, thoracic and mediastinal disorders	3
Cough	3
Pneumothorax	1
Cardiac disorders	2
Heart failure	2
Musculoskeletal and connective tissue disorders	1
Arthalgia	1
Vascular disorders	1
Vasculitis	1

La mortalité aux soins intensifs a été de 23% et la mortalité hospitalière de 32%.

Table 4. Multivariate analysis of hospital mortality of the patients admitted to the intensive care unit.

	Odds ratio (95% CI)	*P*-value
Presence of a therapeutic limitation within the 24 h after the admission at the ICU	8.44 (1.65 to 43.23)	0.01
SOFA (per one unit of increasing)	1.59 (1.34 to 1.88)	<0.001
CCI (per one unit of increasing)	1.18 (1.04 to 1.34)	0.01

Abbreviation of Table 4 :
CI: Confidence interval
CCI: Charlson comorbidity index
ICU: Intensive care unite
SOFA: Sequential organ failure assessment

La survie à un an des patients ayant survécu à l'hospitalisation était de 37% (17% pour ceux avec une tumeur solide et 61% pour ceux avec une hématologie maligne).

La littérature

Table 5. Outcome of cancer patients urgently receiving an anti-cancer medical treatment at the intensive care unit.

	Jennens 2002 [11]	Darmon 2005 [18]	Benoit 2006 [8]	Toffart 2011 [12]	Song 2011 [7]	Chen 2017 [13]	Wolfarth 2014 [9]
Year	1993–2001	1997–2003	1997–2005	2000–2007	2002–2008	2001–2013	2010–2013
Design	R	P	R	R	R	R	R
Number of patients	5 lung	100 mixed: -80 hemato -20 solid	37 hemato	103 lung	62 mixed: -49 hemato -13 solid	72 lung (58 NSCLC Et 14 SCLC): -24 treated by TKI -24 treated by CxT -24 treated par BSC	46 mixed: -49 hemato -9 solid
Age: Median (year)	64	47	46	67	50	68,8	47
Prognostic Factor (multivariate analysis)	/	Increasing the 30 days mortality: -vasopressor -ventilation -hepatic failure	/	Increasing the 3 months mortality: -PS>2 -SAPS II (per one unit of increasing) -metastatic status	Increasing the ICU mortality: -ventilation - SOFA score >10	Increasing the ICU mortality: -ventilation Increasing the hospital mortality: -NTBR status	/
Median score SAPSII/SOFA	/	SAPSII: 39	/	SAPS II: 33	SAPS II: 53 SOFA: 10	/	SAPS II: 50
ICU mortality (%)	/	36	32	31	40	25 (TKI) 54.2 (CxT) 50 (BSC)	25
Hospital mortality (%)	/	41	43	48	/	58.3 (TKI) 70.8 (CxT) 62.5 (BSC)	41
1 year survival (%)	40	/	/	12	/	/	32
	Barth 2018 (14)	De Oliveira 2017 (10)	Zerbib 2017 (15)	Pastores 2018 (16)	Cherruault 2018 (17)	Institut Jules Bordet 2019	
Year	2010–2013	2009–2014	2001–2015	2010–2015	2007–2016	2007–2017	
Design	R	R Case-control	R	R Case-control	R	R	
Number of patient	17 lung	–47 mixed treated by CxT at the ICU -47 mixed without CxT at the ICU	136 solid -57 SCLC -33 NSCLC -46 others	–181 hemato treated by CxT at the ICU - 181 hemato without Cxt at the ICU	17 hemato (with septic shock)	147 mixed: -80 solid -67 hemato	
Age Median (year)	/	–53 -58	60	–62 - 62	63,5	58	

(*Continued*)

Table 5. (Continued).

	Jennens 2002 [11]	Darmon 2005 [18]	Benoit 2006 [8]	Toffart 2011 [12]	Song 2011 [7]	Chen 2017 [13] Wolfarth 2014 [9]
Pronostic Factor	/	/	Decreasing the hospital mortality: -SCLC (vs other type of solid cancer)	Increasing the ICU mortality: -MPMP-II score -dialysis Increasing the hospital mortality: -MPM-II score Decreasing the ICU mortality and the hospital mortality: -early admission at the ICU	/	Increasing the hospital mortality: -NTBR status within the 24 h after the ICU admission -SOFA -SAPSII -Charslon -respiratory reason of admission at the ICU -number of organ failure
Median score SAPSII/SOFA	/	SAPS III: 63 vs 64 SOFA: 4 vs 3	SAPS II: 34 SOFA: 4	SOFA: 6	SAPS II: 55.5	SAPSII: 33 SOFA: 3
ICU mortality (%)	29	48.9 (By CxT) 23.4 (No CxT)	37	25 (By CxT) 22 (No CxT)	76.5	23
Hospital mortality (%)	41	76.6 (By CxT) 46.8 (No CxT)	58	42 (By CxT) 33 (No CxT)	82	32
1 year survivall (%)	/	13 (By CxT) 37 (No CxT)	12	50 (By CxT) 59 (No CxT)	12	37

Abbreviations and symbols of Table 5
BSC: best supportive care
BC: bronchial carcinomas
CxT: Chemotherapy
DIVC: disseminated intravascular coagulation
Hemato: hematologic
ICU: intensive care unit
MPM-II Score: Mortality Probability Model at Intensive Care Unit Admission
NSCLC: non-small cell bronchial carcinoma
NTBR: not to be resuscitated
P: prospective
PS: performance status
R: retrospective
SAPSII: simplified acute physiology score II
SCLC: bronchial small cell carcinoma
SOFA: sequential Organ Failure Assessment
TKI: Tyrosine Kinase inhibitor

Table 2. General considerations for administering chemotherapy

General considerations for ICU physicians regarding administration of chemotherapy
Need for the presence of an extraction hood for preparation, use gloves when manipulating cytostatic drugs
Specific recommendations for urine and stool elimination
Follow recommendations regarding dilution, volume, infusion rate, solute, protection from light,…
Double or triple check dosage calculations and patient identity
Make sure the patient is informed about side-effects (alopecia, infertility and so on) and provided consent
Prophylactic use of antiemetics according to the risk
Preference for a central catheter to administer chemotherapy
In case of extravasation: stop infusion, urgent evaluation and multidisciplinary approach by the nurse, treating physician, hematologist, plastic surgeon and pharmacist. Urgent and aggressive treatment is warranted within 24 h in case of extravasation of harmful agents (e.g. amsacrin, doxorubicin, vincristin, …)

Les traitements anticancéreux en réanimation

Les grands types

- Le patient à risque
- les études de phase I
- les traitements à risque
- la chimiothérapie intensive