What is New in Geriatric Oncology?

The Surgical Perspective

B.L. van Leeuwen MD, PhD
University Medical Center Groningen
The Netherlands
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Survival trends in European cancer patients diagnosed from 1988 to 1999

Arduino Verdecchia\textsuperscript{a}, Stefano Guzzinati\textsuperscript{b}, Silvia Francisci\textsuperscript{a}, Roberta De Angelis\textsuperscript{a,*}, Freddie Bray\textsuperscript{c}, Claudia Allemani\textsuperscript{d}, Andrea Tavilla\textsuperscript{a}, Mariano Santaquilani\textsuperscript{a,d}, Milena Sant\textsuperscript{d}, the EUROCARE Working Group
Survival colon cancer

Area weighted European average
Five-year relative death rate by age (men)

Relative rate

Diagnosis period

E U R O P E A N  J O U R N A L  O F  C A N C E R  4 5  ( 2 0 0 9 )  1 0 4 2 – 1 0 6 6
Postoperative survival in rectal cancer

Survival of elderly rectal cancer patients not improved: Analysis of population based data on the impact of TME surgery

Harm Ruttena,*, Marcel den Dulkb, Valery Lemmensc, Grard Nieuwenhuijzena, Pieta Krijnen4, Marlies Jansen-Landheerc, Lonneke van de Poll Franse, Jan-Willen Coeberghc, Hendrik Martijnf, Corrie Marijnenf, Cock van de Veldeb

EUROPEAN JOURNAL OF CANCER 43 (2007) 2295–2300
Rutten et al 2007

Fig. 1 – Cox regression overall survival curves in the CCC combined database. Improved survival over the subsequent periods in the younger patients (p < 0.0001), but no improvement in the subsequent periods for the elderly patients.
Breast cancer surgery

Critical Reviews in Oncology/Hematology

Comorbidity, disability and geriatric syndromes in elderly breast cancer survivors. Results of a single-center experience

Regina Gironés a,*, Dolores Torregrosa a, Roberto Díaz-Beveridge b

a Oncology Unit, Hospital Luís Alcanys, Crta Xàtiva a Silla km 2, Xàtiva 46800, Valencia, Spain
b Medical Oncology Department, Hospital La Fe, Valencia, Spain

Conclusions: Older patients with early breast cancer on follow-up have a high prevalence of comorbidity. In our series, function and independence were maintained. A selection bias cannot be excluded, as the
Is surgery feasible?

Current Treatment Options in Oncology
DOI 10.1007/s11864-009-0114-4

Ovarian Cancer Cytoreductive Surgery in the Elderly

Ginger J. Gardner, MD*
feasibility and acceptable complication rates for debulking surgery among women ≥70 years of age. These studies demonstrate improved survival among optimally debulked patients. There are limited data
Is surgery feasible?

Risk Factors for Morbidity After Lobectomy for Lung Cancer in Elderly Patients

Mark F. Berry, MD, Jennifer Hanna, MD, Betty C. Tong, MD, William R. Burfeind, Jr, MD, David H. Harpole, MD, Thomas A. D’Amico, MD, and Mark W. Onaitis, MD

Department of Surgery, Division of Thoracic Surgery, Duke University Medical Center, Durham, North Carolina; and Department of Thoracic Surgery, St. Luke’s Health Network, Bethlehem, Pennsylvania

Survival after lobectomy

Fig 2. A. Kaplan-Meier analysis of overall survival after lobectomy in all patients older than 70 years. B. Kaplan-Meier analysis of overall survival after lobectomy in patients with stage I lung cancer.
Which are the problems surgeons are faced with?

1. Decision making
2. Perioperative care
3. Tailored surgery (omitting axillary dissection in breast cancer?)
What are the problems surgeons are faced with?

4. Postoperative functional loss
5. Are there genetic factors predictive of outcome?
Geriatrics for Surgeons: Infusing Life into an Aging Subject

Travis P. Webb, MD, and Edmund Duthie Jr, MD

Department of Surgery, Medical College of Wisconsin, Milwaukee, Wisconsin
• Preoperative Risk Estimation of the Onco-geriatric Patient
• Compare components of PACE vs “get up and go”, VES13 and GFI (15 items)
• Patients ≥70yrs undergoing surgery for a solid malignant tumors
L. Hempenius University Center for the Elderly × B.L. van Leeuwen
Department of Surgery, University Medical Center Groningen, The
Netherlands × JD Spiliotis Department of surgery, Messolongi
General Hospital, Greece × C Stabilini Department of surgery,
University of Genoa, Italy × BT Veering Department of
anaesthesiology, Leiden University Medical Center, The
Netherlands × R Stauder Department of internal medicine,
Innsbruck Medical University, Austria × G Ugolini Department of
general surgery, emergency surgery and organ transplantation,
University of Bologna, Italy × A Sanabria Department of surgery,
University of San Ignacio, Bogotá, Colombia × R Gennari
Department of surgery, Istituto Clinico Beato Matteo, Vigevano, Italy
× G Diana Department of surgery, University of Palermo, Italy ×
J E Farinella Department of general and emergency surgery,
University of Perugia, Italy × RA Audisio Department of surgery,
University of Liverpool, United Kingdom ×
## Preop preliminary data

<table>
<thead>
<tr>
<th>Test</th>
<th>Any complication</th>
<th>Major complication</th>
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<tbody>
<tr>
<td></td>
<td>n</td>
<td>P value</td>
</tr>
<tr>
<td>IADL dependent (&lt;8)</td>
<td>19</td>
<td>0.001</td>
</tr>
<tr>
<td>BFI moderat/severe fatigue (&gt;3)</td>
<td>23</td>
<td>0.008</td>
</tr>
<tr>
<td>PS abnormal (&gt;1)</td>
<td>11</td>
<td>0.043</td>
</tr>
<tr>
<td>GFI frail (&gt;3)</td>
<td>23</td>
<td>0.669</td>
</tr>
<tr>
<td>VES-13 vulnerable (≥3)</td>
<td>21</td>
<td>0.005</td>
</tr>
<tr>
<td>TGUG slow (&gt; 16.5 seconds)</td>
<td>18</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Pre-operative Risk Estimation for Onco-geriatrics Patients Study at McGill (PREOP-M)
A three-tiered interdisciplinary, multicenter, collaborative project

PRINCIPAL INVESTIGATORS:
Dr. Antonio A. L. Vigano
Dr. Lucy Gilbert
Dr. José A. Morais

Project Coordinator:
Dr. Celena Scheede-Bergdahl

1. CIHR CATALYST GRANT PROPOSAL (PILOT PHASE)
Towards the identification of optimal predictors of surgical complications in elderly cancer patients: a pilot study

CIHR: Canadian Institutes of Health Research

Co-investigators:
McGill University, Canada
Dr. Armen Aprikian
Dr. Robert Kilgour
Dr. Prosario Chaudhury
Dr. Alexander S. Liberman
Dr. Wassim Kassouf

Objective: To further test the feasibility of conducting nutritional functional and biological assessments either in an outpatient/ preadmission setting as per the Pre-operative Risk Estimation for Onco-geriatric Patients (PREOP) protocol, or within a human laboratory (the McGill Nutrition and Performance Laboratory; MNUPAL) in elderly patients, undergoing cancer surgery.

2. CIHR-NDA GRANT PROPOSAL (PARALLEL PHASE)
From Hospital to Home: Implementing the Pre-operative Risk Estimation for Onco-geriatric Patients (PREOP) tool via Novel Assessment in Nutrition and Aging (NANA) technology

NDAC: UK National Department for Aging

Co-investigators:
University of St. Andrews, UK
Dr. Arlene J. Asbell
University of Birmingham, UK
Dr. Feasmina Hwang
University of Bath, UK
Dr. Tim Adiam

University of Liverpool, UK
Dr. Riccardo A. Audisio
Medical Center Groningen, The Netherlands
Dr. Barbara van Leeuwen

Objective: To pilot computer-based technologies being developed by the NANA team in order to collect the data proposed by the PREOP protocol in elderly cancer patients from within their homes.

3. CIHR-OPERATING GRANT PROPOSAL (FULL-OPERATIONAL PHASE)
From predicting to reducing surgical risks in older cancer patients: an international, prospective, interdisciplinary study

Principle co-investigator:
University of Liverpool, UK
Dr. Riccardo A. Audisio

Co-investigators:
Medical Center Groningen, The Netherlands
Dr. Barbara van Leeuwen

McGill University, Canada
Dr. Arman Aprikian
Dr. Prosario Chaudhury
Dr. Wassim Kassouf
Dr. Te Vuong
Dr. Alexander S. Liberman
Concordia University, Canada
Dr. Robert Kilgour
Dr. Simon Bocon

Objective: To establish if nutritional, functional or biological variations, as measured by the PREOP and MNUPAL protocols, are predictive of post-surgical complications and length of hospital stay in elderly patients, undergoing cancer surgery.
Postoperative Delirium

- Incidence: 10-50%
- Increases morbidity
- Increases mortality
- Increases costs by 25%
Primary Objective

Show the effect of perioperative intervention by a geriatric team on the incidence of postoperative delirium in the frail elderly patient.
Secondary objective

Show the effect of geriatric intervention on:

• Postoperative quality of life
• Postoperative morbidity
• Length of hospital stay
• Costs
Selection patients

Groningen Frailty Index (GFI)

GFI >3
- randomise
  - Intervention group
  - Control group

GFI ≤3
- No action
LIFE

- Recruitment so far 220 patients
- Closing date June 2010
- Basis for further development of care pathways in different areas
Postoperative cognitive dysfunction

- Present in 5-60% of elderly patients
- Exact mechanism unknown
- Different causal mechanisms proposed
Normal cognitive decline

Small et al., 2008
Incidence POCD

Monk et al., 2008
Mortality and POCD

Monk et al., 2008
Incidence POCD

<table>
<thead>
<tr>
<th></th>
<th>First 2 weeks post-operatively</th>
<th>12 weeks post-operatively</th>
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<tbody>
<tr>
<td>Non-cardiac surgery</td>
<td>16-59%</td>
<td>10-34%</td>
</tr>
<tr>
<td>Cardiac surgery</td>
<td>24-79%</td>
<td>10-60%</td>
</tr>
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</table>

Savageau et al., 1982b; Shaw et al., 2001; McKhann et al., 1997; Newman et al., 2001; Van Dijk et al., 2002; Williams-Russo et al., 1995; Møller et al., 1998; Ancelin et al., 2001; Rasmussen et al., 2003; Monk and Phillips-Bute., 2004
POCD pathogenesis

- Toxicity anesthetics?
- Hypotension?
- Hypothermia?
- Embolus?
- Amyloid plaques?
- Neuroinflammation?

Gao et al., 2005; Caza et al., 2008
POCD pathogenesis

• IL-6: increased postoperatively

• IL-1β and TNF-a: may penetrate the blood / brain barrier

Biffl. Et al., 1996; Hansen et al., 2000; Chauvet et al., 2001; Gao et al., 2005; Matthew et al., 2007
The immune system in the elderly

Higher C-Reactive Protein and Soluble Tumor Necrosis Factor Receptor Levels Are Associated With Poor Physical Function and Disability: A Cross-Sectional Analysis of a Cohort of Late Middle-Aged African Americans

Matthew T. Haren,1,2,3,4 Theodore K. Malmstrom,5 Douglas K. Miller,6 Ping Patrick,1 H. M. Perry III,2 Margaret M. Herning,7 William A. Banks,1,2 and John E. Morley1,2

1Division of Geriatrics, Department of Internal Medicine, Saint Louis University School of Medicine, Missouri.
2Geriatric Research Education Clinical Centre, VA Medical Center, St Louis, Missouri.
3Spencer Gulf Rural Health School, University of South Australia and the University of Adelaide, Whyalla.
4Centre for Rural Health and Community Development, University of South Australia, Whyalla.
5Department of Neurology and Psychiatry, Saint Louis University School of Medicine, Missouri.
6Regenstrief Institute, Inc., and Indiana University Center for Aging Research, Indiana University School of Medicine, Indianapolis.
7Department of Physical Therapy, Saint Louis University, Missouri.
Conclusion

Improvement of decision making
  - identifying the frail

Improvement of treatment outcome