EARLY OUT OF BED MOBILITY FOLLOWING ACUTE HIGH-RISK ABDOMINAL SURGERY

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Line Rokkedal Jønsson
Fysio- og Ergoterapien, Hvidovre Hospital
MR, Stud. Cand. Scient. i fysioterapi

ACUTE HIGH-RISK ABDOMINAL SURGERY (AHA)

Definition of AHA

- Emergency laparotomi or laparoskopi
- Primary surgery or re-operation after elective surgery
- Patients > 17 years
- Not minor surgery (ex. Appendectomy, cholecystectomy)

Indication of AHA:

- Perforated vicus
- Intestinal obstruction
- Bowel ischemia

Tengberg LT 2017

ACUTE HIGH-RISK ABDOMINAL SURGERY (AHA)

AHA surgery:

- Approx. 3400 patients in Denmark every year
- High mortality rates
- High incidence of postoperative complications
- Prolonged hospitalization

Implementing Enhanced Recovery Program:

- 6 month mortality rate: from 29,5% to 22,5 % *(P = 0,004)*
- Includes:
  - Reducing time before surgery
  - Optimizing surgical procedure
  - Pain relief
  - Early mobilization and nutrition

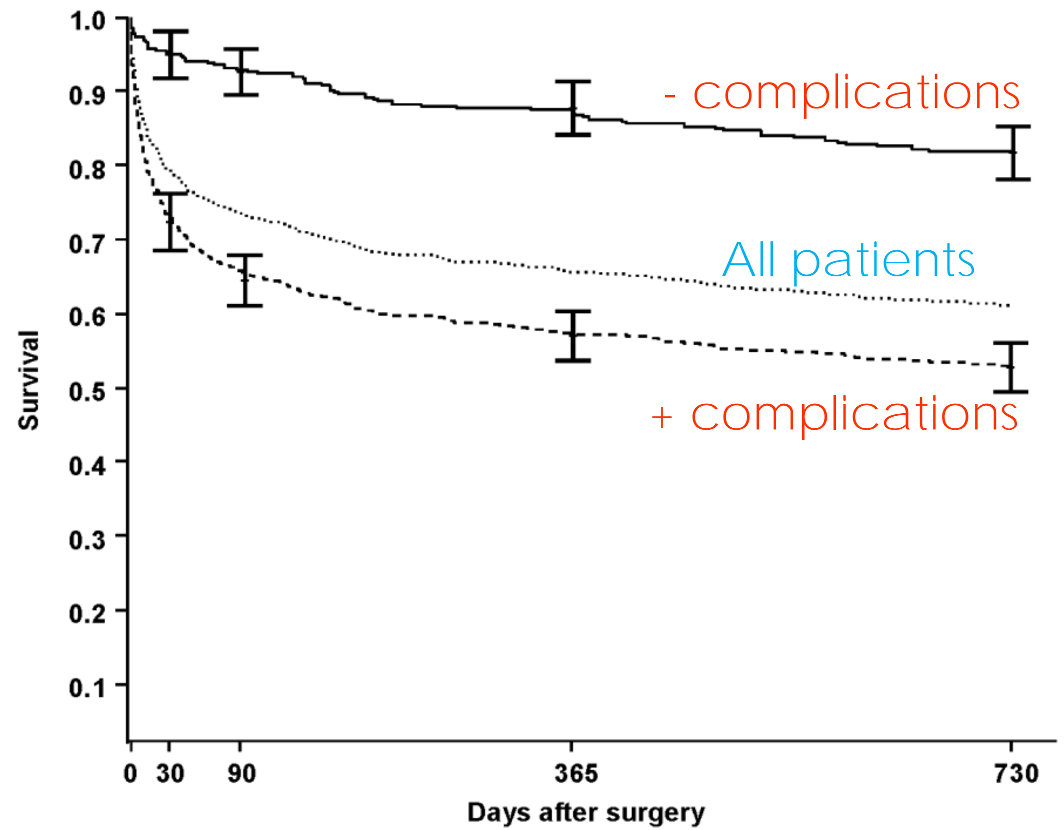
Tengberg LT 2017

POSTOPERATIVE COMPLICATIONS FOLLOWING AHA

Postoperative complications:

- Abdominal infection (19,7%)
- Pulmonary (19,3%)
- **≥ 1 complication (71%)**

Postoperative complications are associated with increased postoperative mortality.



***L.T. Tengberg (2017):** Kaplan-Meier survival curve (n = 1139)*

CONSEQUENCE OF ABDOMINAL SURGERY

Surgery-induced inflammation (Bautmans 2010)

- Reduced muscle endurance
- Self-perceived fatigue

Pain in the abdomen (Jønsson 2017, Shea 2002, Haines 2013)

- Fear of mobilization

Reduced nutritional intake (Kehlet 2002 Gustafsson 2012)

- Energy balance
- Loss of muscle function
- Fatigue

CONSEQUENCE OF ABDOMINAL SURGERY

Inactivity/immobilization (Haines 2013, Jønsson 2017,Kortebein 2008)

- Lay or sat: 23,4 – 23,8 hours pr. day (POD 1 – 7)
- Loss of muscle strength, aerobic capacity, physical performance
- Associated with increased risk of PPC and prolonged LOS

Decreased lunge volume (↓FRC) (Antonsson 2012)

- Decreased function of diaphragm
- Distended abdomen
- Pain when breathing /fear of breathing
- Inactivity and/or bedrest
- Associated with increased risk of PPC

EARLY MOBILIZATION – EVIDENCE
ABDOMINAL SURGERY

Studies investigating the effect of early mobilization

- Mostly elective abdominal surgery
- Studies of poor methodologic quality
- Different mobilization protocols
- Conflicting results

Outcomes

Surgery. 2016;159(4):991-1003

The effect of early mobilization protocols on postoperative outcomes following abdominal and thoracic surgery: A systematic review

Tanya Castelino, MD,[a] Julio F. Fiore, Jr, PhD,[a] Petru Niculiseanu, MD,[a] Tara Landry, MLIS,[b] Berson Augustin, BSc,[c] and Liane S. Feldman, MD,[a] *Montreal, Quebec, Canada*

Silva 2013, Fiore 2016, Castelino 2016

Further research is needed

EARLY MOBILIZATION – EVIDENCE
ABDOMINAL SURGERY

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Guidelines for perioperative care in elective colonic surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations☆

U.O. Gustafsson [a,b,*,q], M.J. Scott [c,d,q], W. Schwenk [e,q], N. Demartines [f,q], D. Roulin [f,q], N. Francis [g,q], C.E. McNaught [h,q], J. MacFie [h,q], A.S. Liberman [i,q], M. Soop [j,q], A. Hill [k,q], R.H. Kennedy [l,q], D.N. Lobo [m,q], K. Fearon [n,q], O. Ljungqvist [o,p,q]

Summary and recommendation: Available RCTs do not support the direct beneficial clinical effects of postoperative mobilisation. Prolonged immobilisation, however, increases the risk of pneumonia, insulin resistance, and muscle weakness. Patients should therefore be mobilised.

Evidence level: Low (extrapolated data, weak effect)

Recommendation grade: Strong

RECOMMENDATION

Early mobilization (Yip 2016, Van der Leeden 2016, Fiore 2017, Castelino 2016)

- Basic mobilization: in/out of bed, rise, walk, transfer technique
- Importance of self-mobilization (walking device)
- Sitting out of bed (POD 0-2: 2 hours, POD >2: 6 hours)
- Special attention:
  - Non-independent patients
  - Older patients
  - Patient with PPC or at risk of PPC

Respiratory Physiotherapy (Antonsson 2012)

- Deep breathing exercise
- When needed: PEP or CPAP
  - Immobilized patients
  - Insufficient respiration
  - Pain when breathing
  - Mucus

THE **AIM** OF EARLY MOBILIZATION FOLLOWING AHA

- ↓ Loss of muscle strength
- ↓ Loss of physical performance
- ↑ FRC
- ↑ Physical activity level
- ↑ Gastrointestinal function
- ↓ Postoperative complication (PPC, decubitus, DVT, etc)
- ↓ LOS

RECOMMENDATIONS FOR FUTURE RESEARCH AHA

Feasibility study:

- Feasibility of early and enforced mobilization
- Barriers to early mobilization

RCT study:

- Effectiveness of early and enforced mobilization

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