FAKULTNÍ NEMOCNICE BRNO

Early (or Late?) Diagnostics vs. Migration of CRC Patients in Therapeutic Burden of Comprehensive Cancer Centers

Z. Kala[1], L. Dušek[2]

Board of the Czech Society for Surgery

[1]Department of Surgery, Faculty Hospital Brno
[2]Institute of Biostatistics and Analyses, Faculty of Medicine and Faculty of Sciene, Masaryk University, Brno

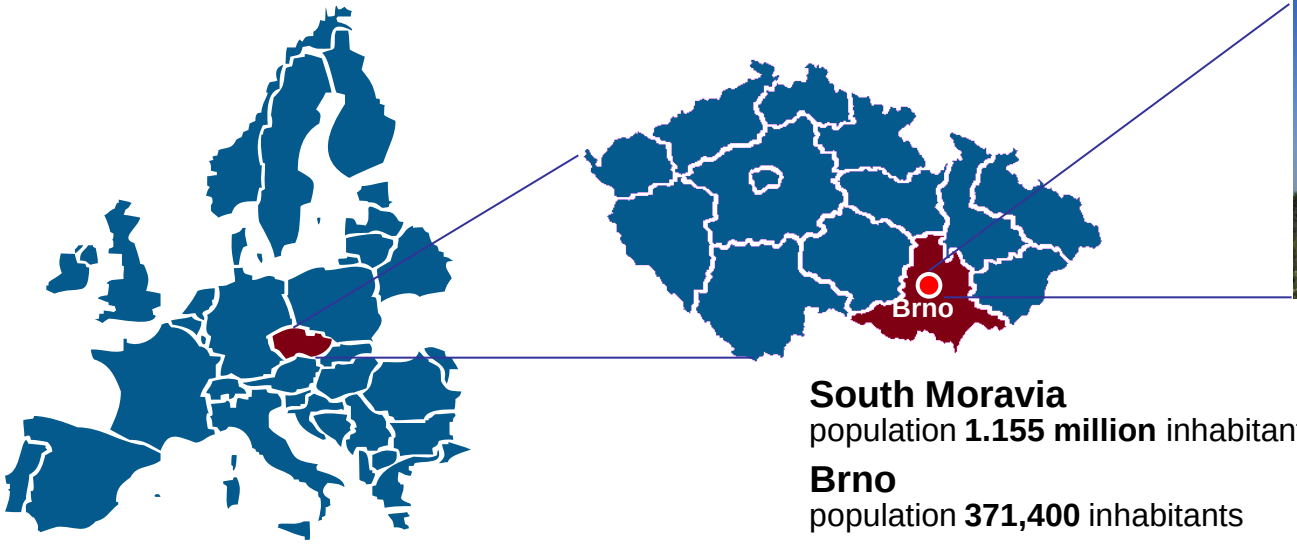
Institut biostatistiky a analýz,
Lékařská a Přírodovědecká fakulta,
Masarykova univerzita, Brno

IBA

Part I.

Introducing Faculty Hospital Brno and Its Cancer Burden

Faculty Hospital Brno, Czech Republic: example of a big CCC



Faculty Hospital Brno

South Moravia
population **1.155 million** inhabitants

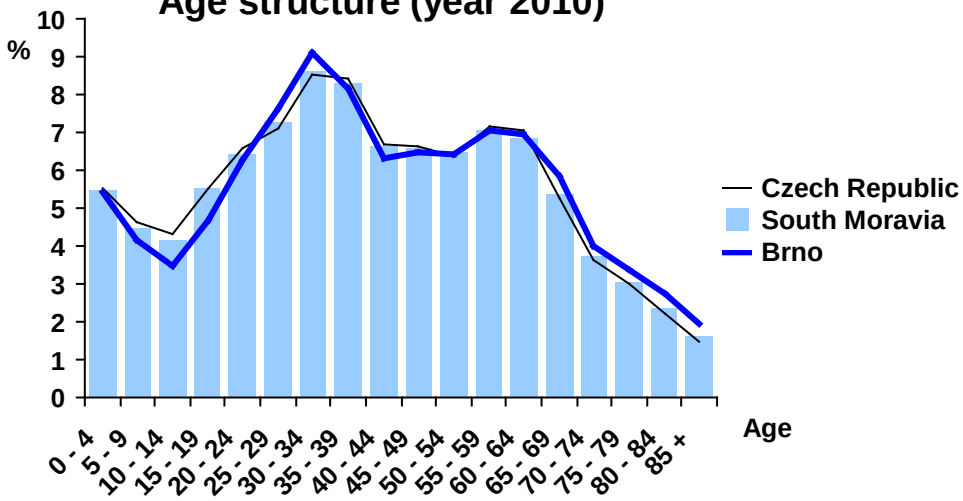
Brno
population **371,400** inhabitants

Czech Republic
population **10.532 million** inhabitants

Age 65+ in population

	N	%
Czech Republic	**1,635,826**	**15.5%**
South Moravia	**186,690**	**16.2%**
Brno	**66,299**	**17.9%**

Age structure (year 2010)

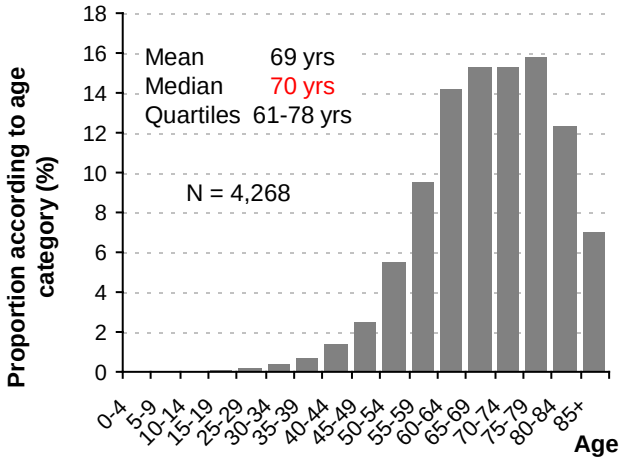


Faculty Hospital Brno can serve as a fully representative example of comprehensive cancer centers (CCCs) in the Czech Republic. Regional population in its tributary area fully corresponds to the demographic profile of the whole Czech population.

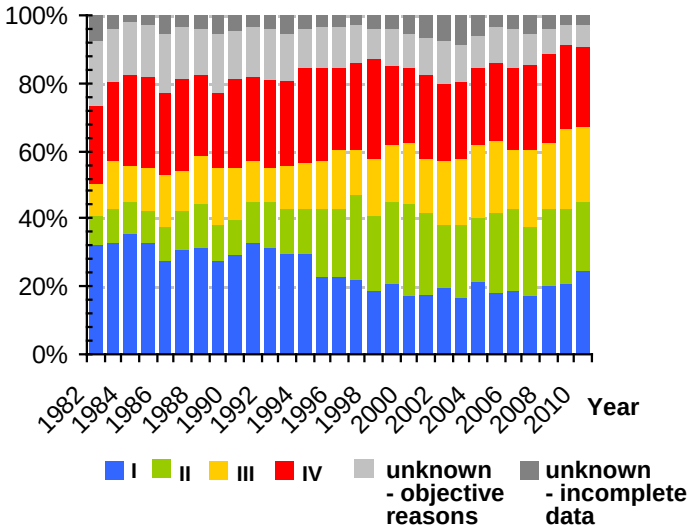
Epidemiology of colorectal cancer in South Moravia Region

Age of patients

period 2006 - 2010



Stage of the disease

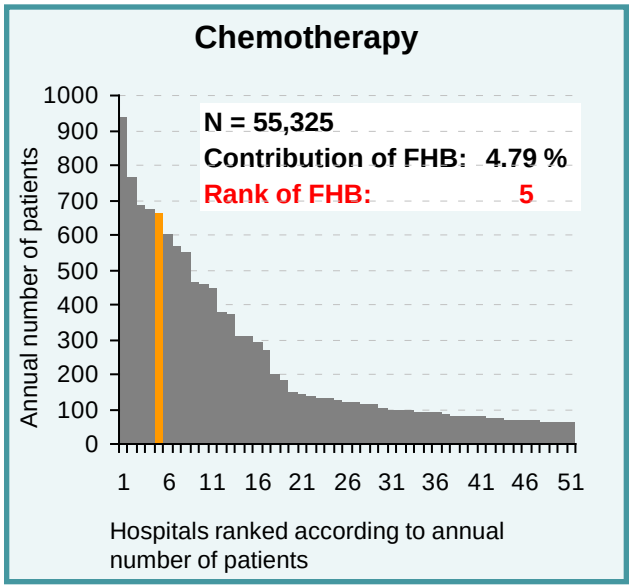


Period 2006-2010

	Annual number (%)
Stage I	174 (20.4 %)
Stage II	187 (21.9 %)
Stage III	181 (21.2 %)
Stage IV	211 (24.7 %)
Stage unknown - objective reasons	70 (8.2 %)
Stage unknown - incomplete data	31 (3.6 %)
Total	854 (100 %)

Source: National Cancer Registry of the Czech Republic

First line treatment of cancer patients in FHB („hospital volume“; 2007-2010)



Faculty Hospital Brno is one of the biggest high volume cancer center in the Czech Republic which is the consequence of ever growing cancer burden in the region.

High therapeutic load requires specific managerial and economic conditions to maintain the care effective.

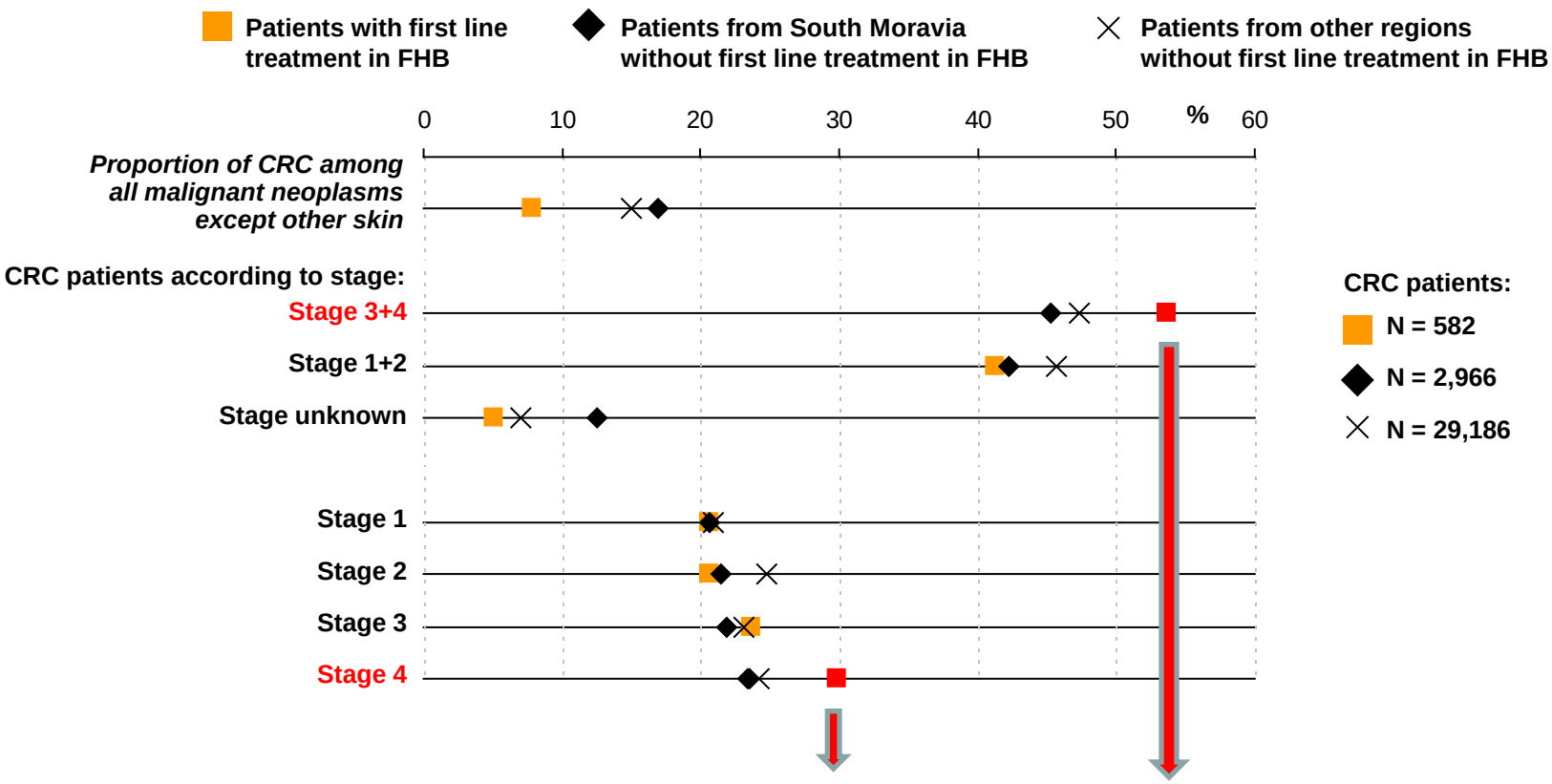
Source: National Cancer Registry of the Czech Republic

Part II.

Problems Associated with Comprehensive Care for CRC in the Czech Republic

PROBLEM I. High incidence and prevalence of advanced stages of the disease

Case mix of FHB in treated CRC patients: benchmarking against epidemiological (population) data

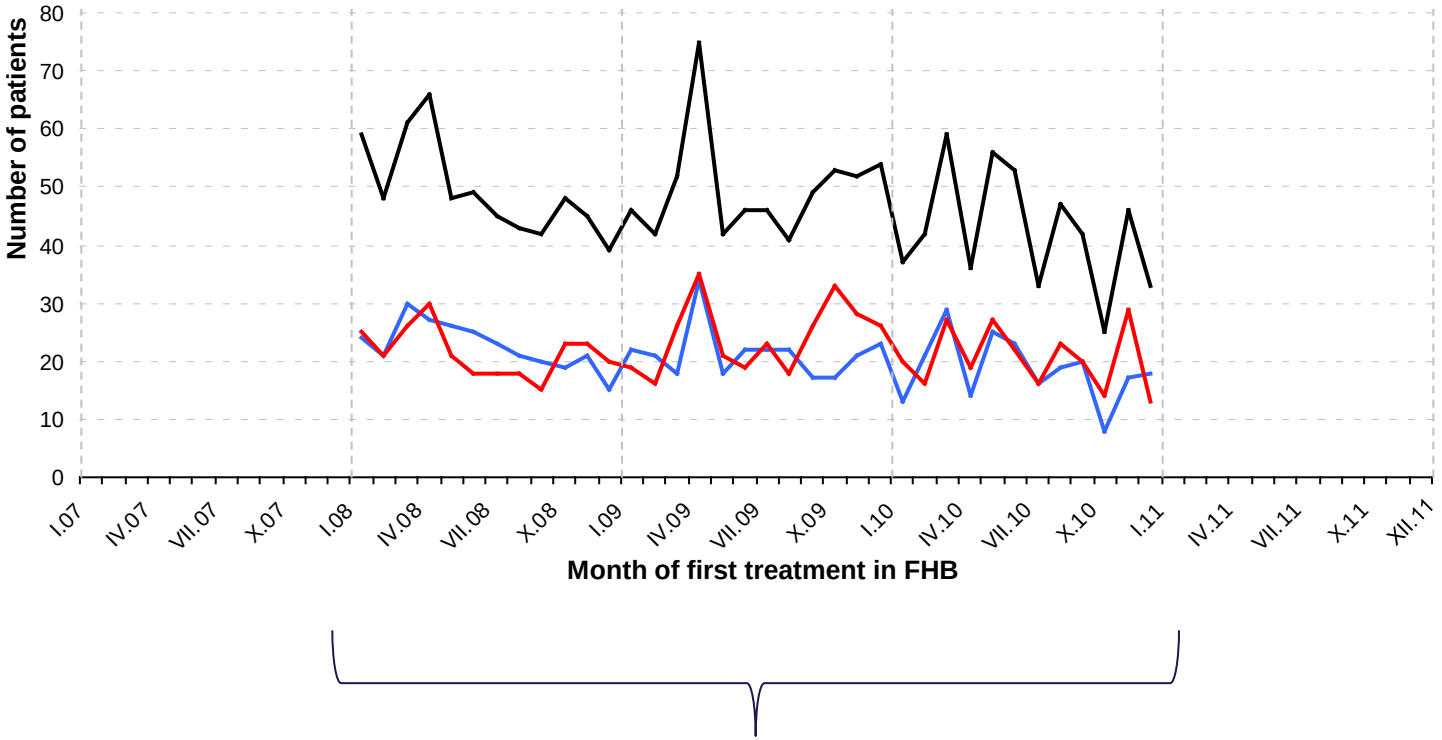


FHB is overloaded by CRC patients in advanced clinical stage.
The same problem can be found in nearly all CCCs in the country.

Source: National Cancer Registry of the Czech Republic

PROBLEM I. High incidence and prevalence of advanced stages of the disease

Incidence of patients with CRC in FNB



all CRC patients
monthly average* = 47
stage 1+2
monthly average* = 21
stage 3+4
monthly average* = 22
* in period I/2008 -XII/2010

High incidence of CRC patients coming with advanced disease is long term and stable. Advanced CRC is primarily diagnosed with the same incidence as less advanced stages I+II – this situation is really alarming.

Source: FHB data + National Cancer Registry of the Czech Republic

PROBLEM II. Clinical and geographical migration of patients

All CRC patients treated in Faculty Hospital Brno*

Clinical migration according to first line of treatment	Geographic migration according to place of living		Total
	South Moravia	Other region	
A0: resident patients, all primary therapy in FHB	522 (16.4%)	42 (1.3%)	**564 (17.7%)**
A1: patients migrating during primary therapy, part of therapy in FHB	395 (12.4%)	116 (3.6%)	**511 (16.0%)**
A2-AT: anti-tumor therapy in hospital, primary therapy elsewhere	206 (6.5%)	97 (3.0%)	**303 (9.5%)**
A2-CC: only continuing care in FHB, primary therapy elsewhere	1436 (45.0%)	374 (11.7%)	**1810 (56.8%)**
Celkem	**2559 (80.3%)**	**629 (19.7%)**	**3188 (100%)**

* only patients with known place of living

Migration of patients to the CCCs is expectable trend, which however opens new challenges for the management of cancer care:

- nearly **20%** of FHB patients come from the other regions (which have their own CCC !)
- **16%** of CRC patients migrate during the course of their primary therapy !
- further approx. **10%** of CRC patients migrate at the time of relapse of primary disease

Source: FHB data + National Cancer Registry of the Czech Republic

PROBLEM II. Clinical and geographical migration of patients

CRC patients with stage 3+4 treated in Faculty Hospital Brno*

Clinical migration according to first line of treatment	Geographic migration according to place of living		Total
	South Moravia	Other region	
A0: resident patients, all primary therapy in FHB	242 (17.2%)	23 (1.6%)	**265 (18.8%)**
A1: patients migrating during primary therapy, part of therapy in FHB	180 (12.8%)	63 (4.5%)	**243 (17.2%)**
A2-AT: anti-tumor therapy in hospital, primary therapy elsewhere	117 (8.3%)	48 (3.4%)	**165 (11.7%)**
A2-CC: only continuing care in hospital, primary therapy elsewhere	561 (39.8%)	177 (12.5%)	**738 (52.3%)**
Celkem	**1100 (78.0%)**	**311 (22.0%)**	**1411 (100%)**

* only patients with known place of living

Migration of patients is even more apparent in CRC patients diagnosed with advanced disease. It further increases the load of the CCC in very demanding segment of cancer care.

Source: FHB data + National Cancer Registry of the Czech Republic

Comprehensive cancer centers (CCC)

- 13 CCC in Czech Republic
- Covers the whole Czech region, that prevents migration
- Offers a comprehensive care to CRC´s patients

Case report

- Female 57 years old
- Family history: negative
- Personal history: hypertension, hemorrhoids, operation – 0
- Present status: spring 2011 – enterorrhagia occasionally

  autumn 2011 – diarrhea

Regional Oncological Centre

Coloscopy with biopsy: semicircular stenotic tumor in 7cm, extensive, partially necrotic, endoscope passable, polyps in 20-25cm

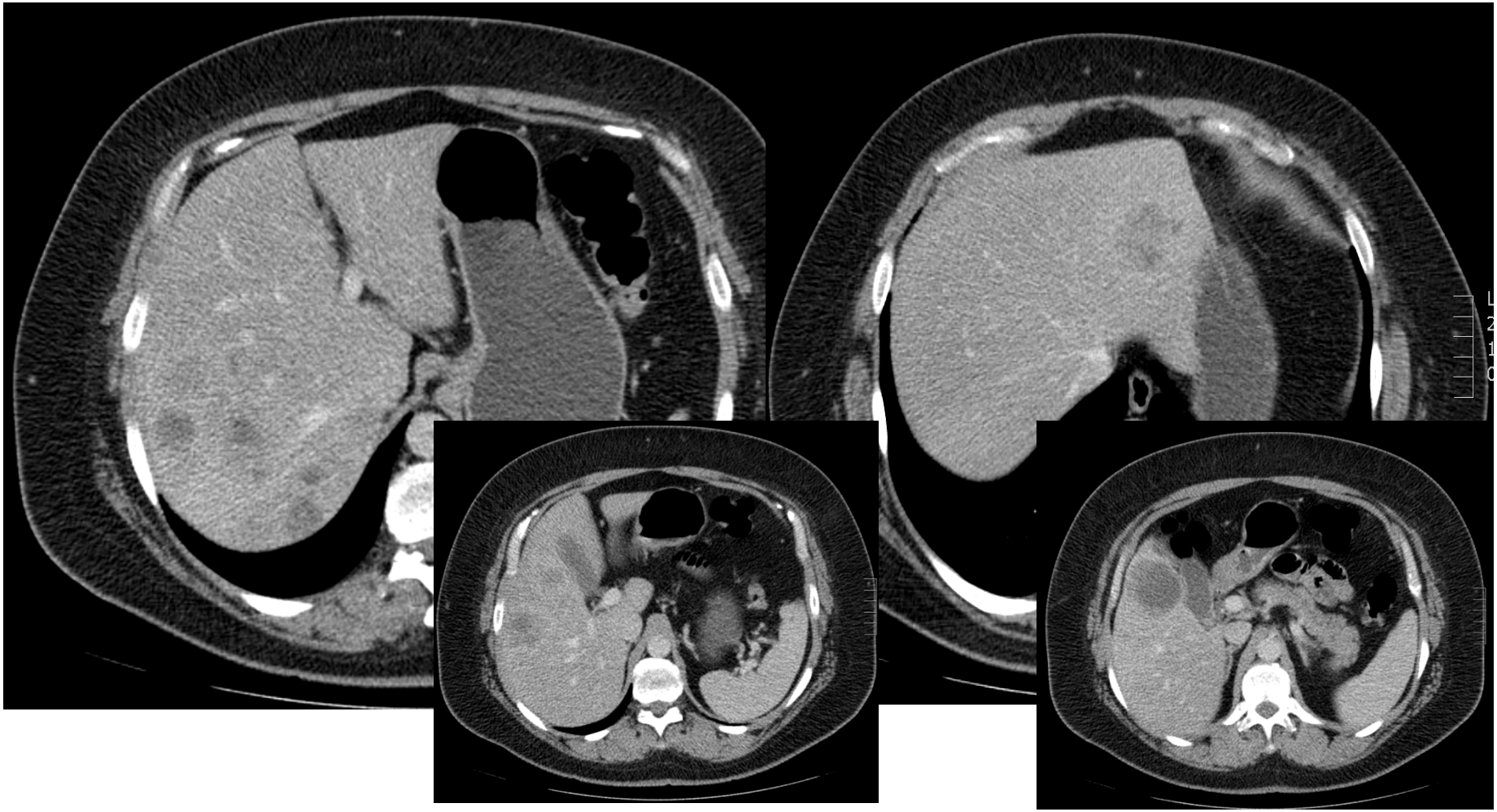
Histology: adenoCa of rectum, adenomous polyp of sigmoid colon

US of abdomen: multiple bilobar liver metastases, cholecystolithiasis

- ***Primary indication:*** **paliative chemotherapy**

CT of abdomen 12/2011 – meta S2/5,S6,S7,S8

- First investigation in CCC FN Brno 12/2011

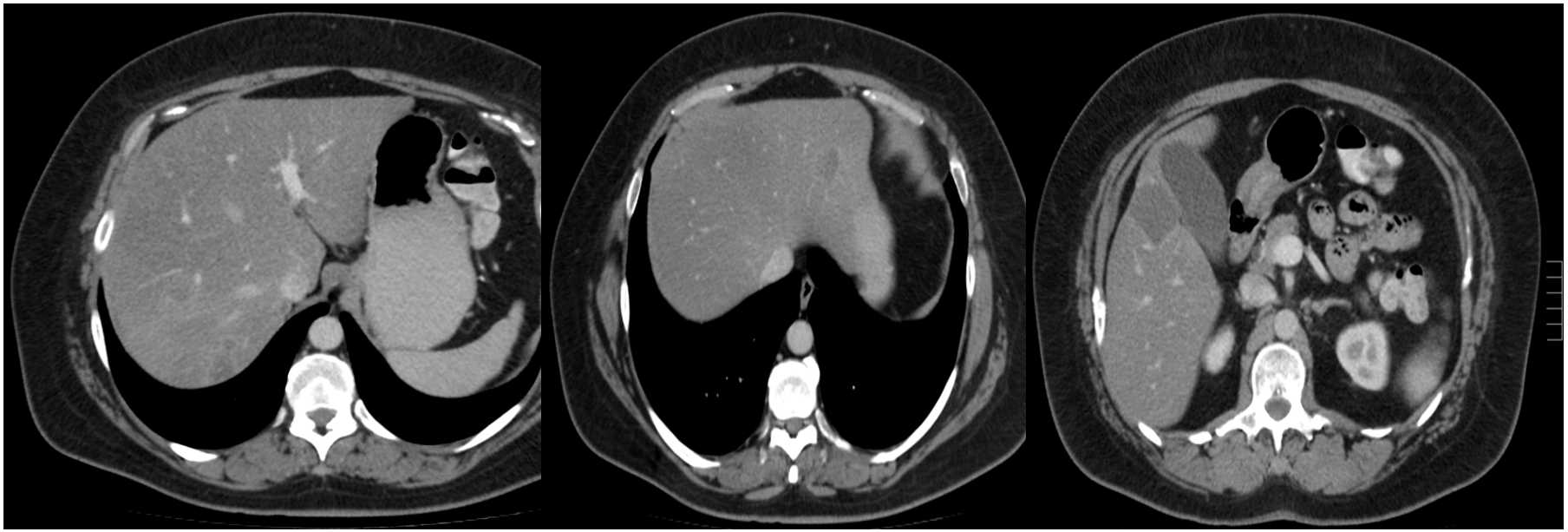


- Tumor markers – CEA 11.63, Ca 19-9 12.8

Chemobiotherapy

- Xelox + Avastin => 4 cycles, finished 1.3.2012
- Restaging: CEA 5.7, Ca 19-9 in the standard,

- CT – RECIST – PR



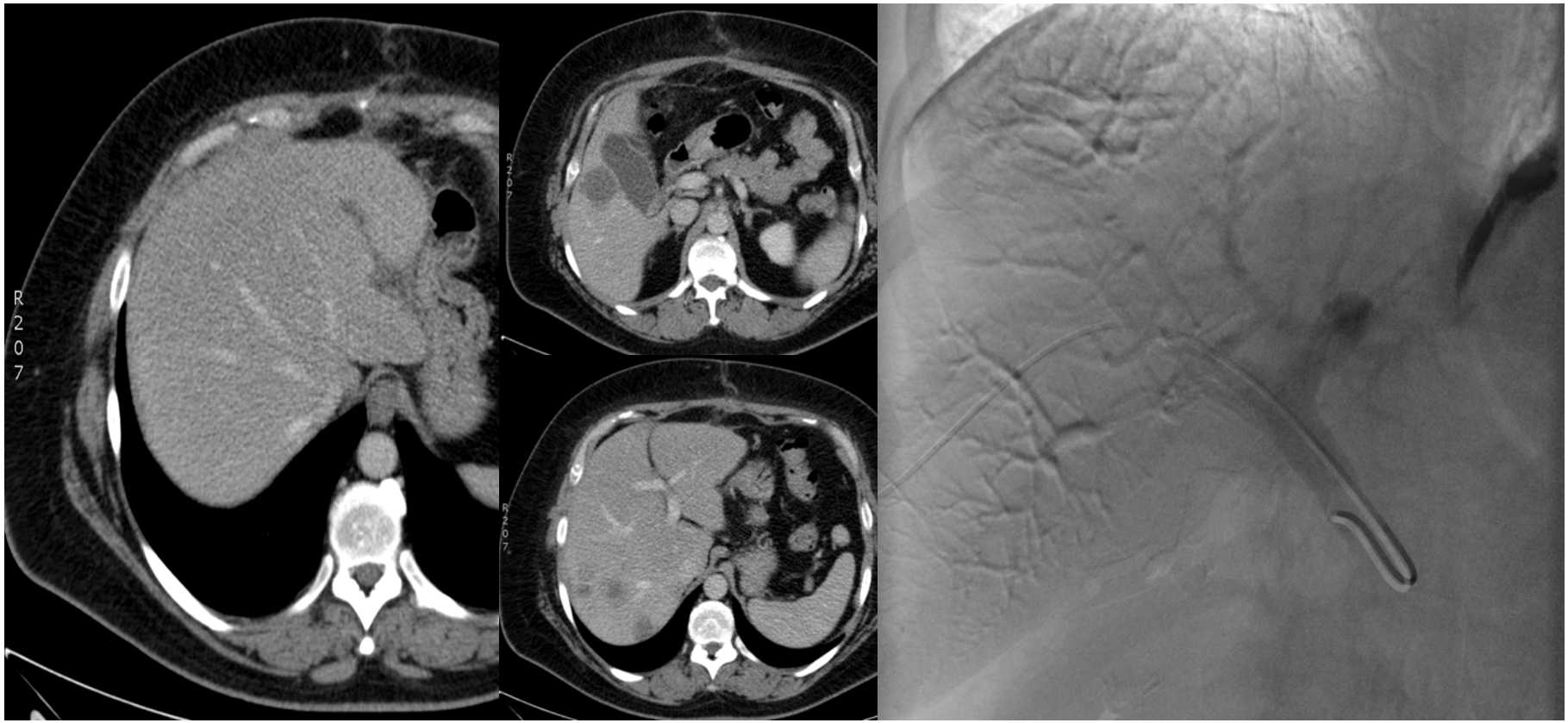
- *Multidisciplinary team consensus 26.3.2012:*

  1, LIVER FIRST – staged resection with PVE

  2, Resection of primary rectal cancer

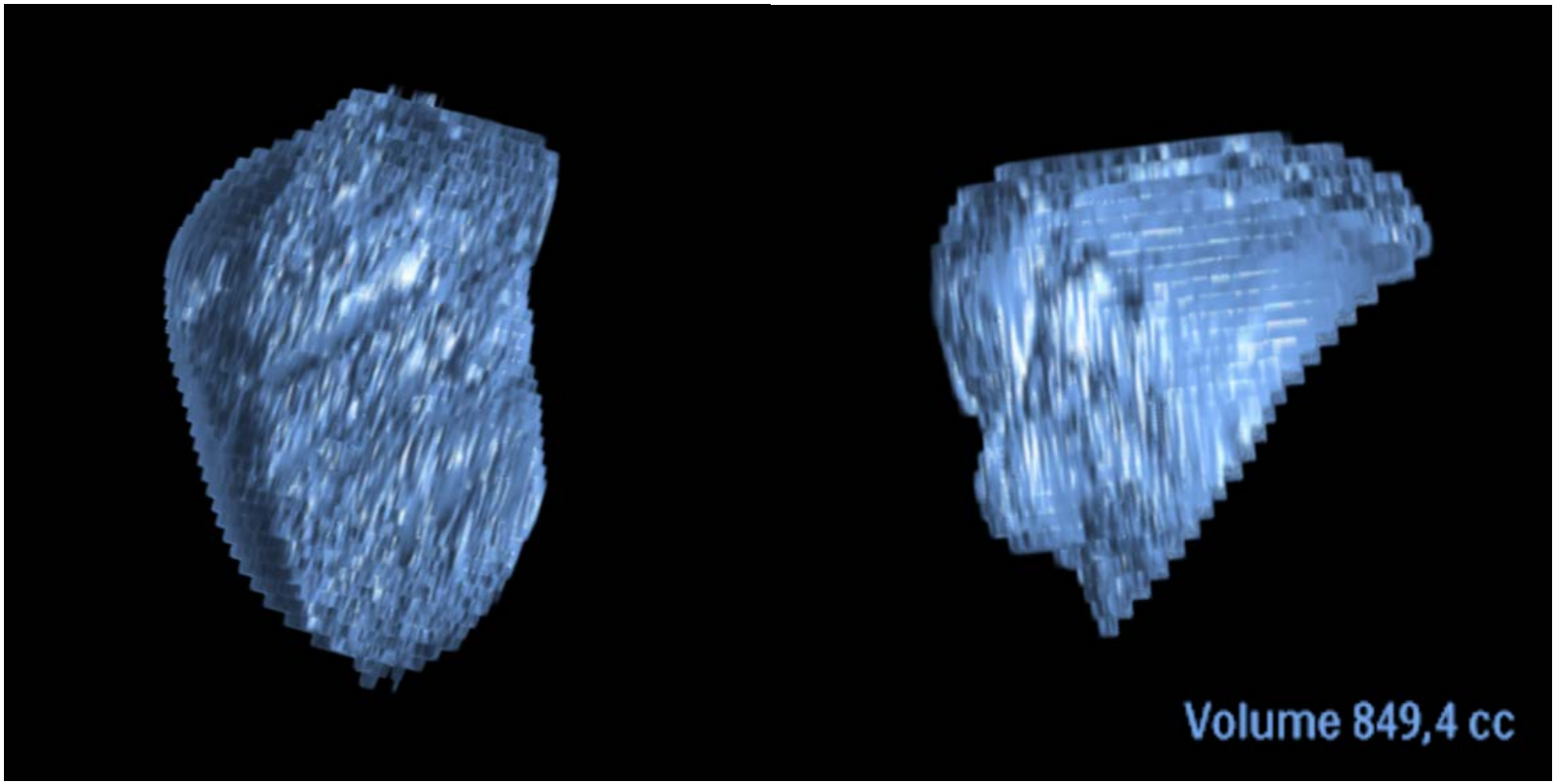
LIVER FIRST – 1st stage

- 19.4.2012 – non-anatomical resection of segm. II/III
- 25.4.2012 – PVE (right portal vein branch)



Liver volumometry

- 25.5.2012
- Liver volume cca 2096 ml / Left lobe volume cca 850 ml (40%)



2nd stage

- *6.6.2012* – right hepatectomy
- 07/2012 – short course radiotherapy
- *18.7.2012* – LAR, TME, protective loop ileostomy
  Histology: ypT3 ypN1b (3/7)
- *25.7.2012* – early loop ileostomy removal

Statistics

- Department of Surgery Faculty Hospital Brno
  01/2010 – 12/2011

- **Colorectal surgery** (benign and malignant diseases) **– 810**

- **Overall** (colorectal cancer) – **252**

- Elective – **206** (81,7%)

- Acute – **46** (18,3%)
  - → ileus **36** (14,3%)
  - → perforation **7** (3,0%)
  - → bleeding **3** (1,2%)

Colorectal cancer as acute abdomen

- Life-threatening disease (co-morbidities, performance status, age, nutrition …)

- Acute life–saving operation
  - Increasing of morbidity and mortality (no bowel preparation)
  - Increasing of permanent and temporary o-stomies
  - Re-operations – staged operations (2,3–stages)

- Higher risk of minor oncological radicality

• Morbidity and Mortality

The Clavien – Dindo Classification of Surgical Complications

- Mortality – **8** (17,4%) (elective 1%*)

Etiology: generalization – **5x**
MODS – **2x**
Pulmonary embolism – **1x**

- Morbidity **– 23** (50%) (elective 10-40%*)

Surgical complications* – *13x

SSI – **11x**
Colon peforation – **1x**
Anastomosis dehiscence – **1x**

Non-surgical complications* – *10x

Bronchopneumonia – **2x**
ARDS – **2x**
Urinary infection – **3x**
Myocardial infarction – **1x**
Hypertension – **2x**

*Gallina S, Proposito D, Veltri S, Montemurro LA, Negro P, Carboni M. Colorectal cancer surgery. Analysis of risk factors in relation to incidence of morbidity and mortality. Chir Ital. 2006 Nov-Dec;58(6):723-32

Part III.

Conclusions:

1. *What is wrong in comprehensive care for CRC?*
2. *What should be changed?*
3. *What are the health care outcomes in current situation?*

CONCLUSIONS

High and increasing cancer burden of comprehensive cancer centers should be supported with optimized economic plan – which is not true nowadays.

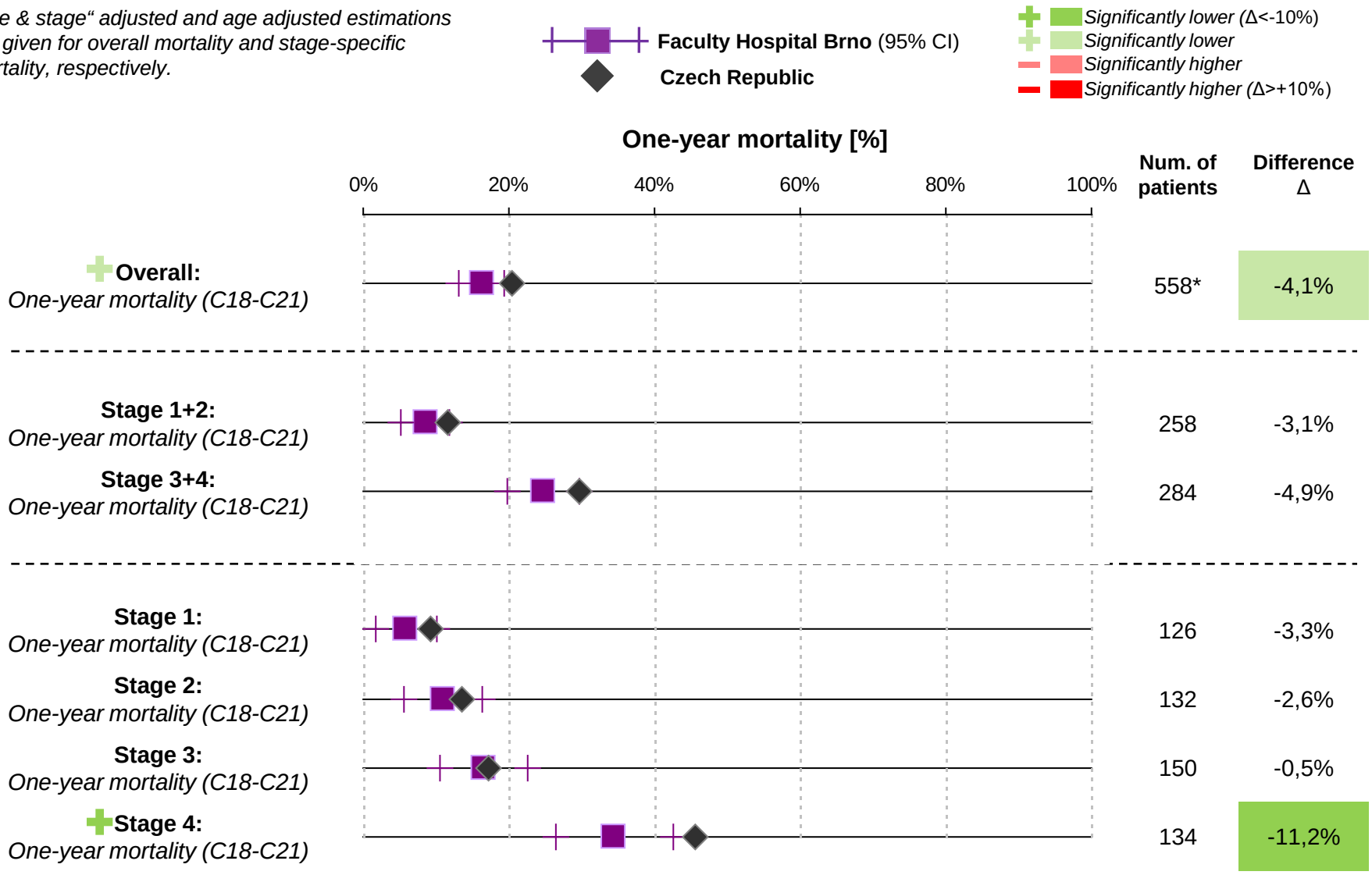
There is lack of collaboration among high volume and the other centers which increases proportion of migrating patients, searching for the care.

High incidence of advanced CRC disease is alarming and nearly unsustainable – effective support of early detection programmes is necessary.

BUT anyway, we can reach and maintain promising outcomes in survival of our patients ….although we cannot save lives when the CRC diagnosis is too late

One-year mortality of CRC patients treated in Faculty Hospital Brno: comparison with the whole Czech Republic (cohort 2005-2009)

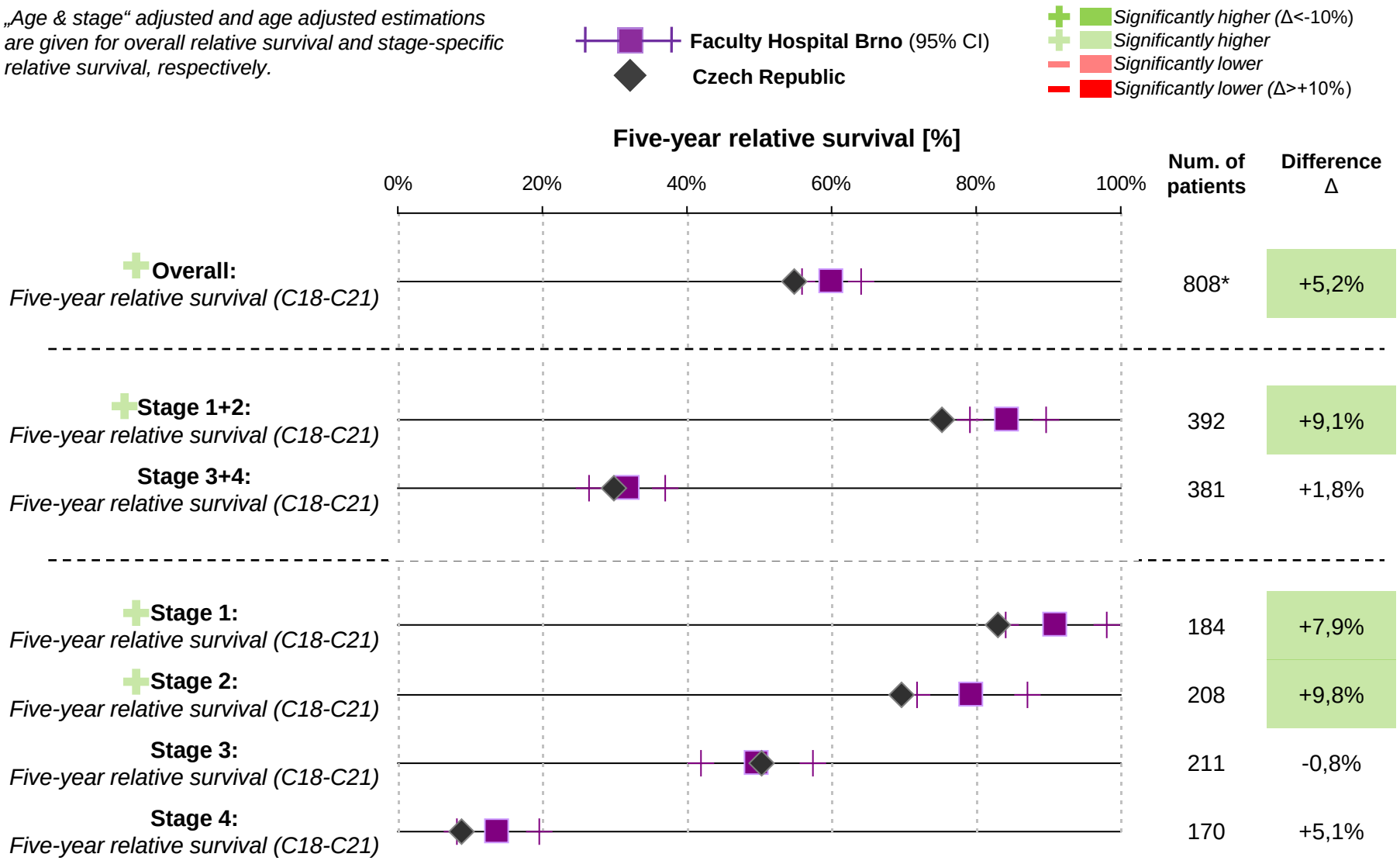
„Age & stage“ adjusted and age adjusted estimations are given for overall mortality and stage-specific mortality, respectively.



*Including 16 patients with unknown stage.

Five-year relative survival of CRC patients treated in Faculty Hospital Brno: comparison with the whole Czech Republic (period analysis 2005-2009)

„Age & stage“ adjusted and age adjusted estimations are given for overall relative survival and stage-specific relative survival, respectively.



*Including 35 patients with unknown stage.

CONCLUSIONS

Thank you for your attention