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PALLIATIVE TREATMENT AND ITS COST IN THE LAST SIX MONTHS OF LIFE FOR METASTATIC COLORECTAL CARCINOMA PATIENTS

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Background

Approximately 10 000 new patients are diagnosed with colorectal cancer every year. Approximately 35% of these patients were metastatic at diagnosis and another 20-50% of them are becoming metastatic.

Depending on the patient's condition, with time, palliative treatment becomes dominant as the benefit of active therapy decreases. (*Figure 1.*)

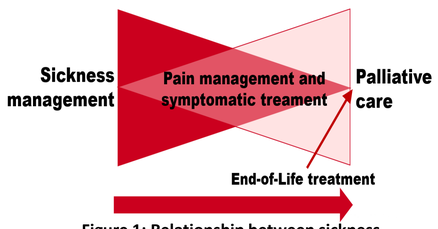


Figure 1: Relationship between sickness management and palliative care

Objective

As a result of modern systemic therapies available in several treatment lines, metastatic colorectal carcinoma (mCRC) could be considered a chronic disease. Our study aimed to assess the palliative treatment of mCRC in the last six months of life. We examined the role of active treatments 6, 3, 2 or 1 months before death and summarized the related costs of this period. Hungarian patients were recruited into our research.

Methods

Data sources
- In Hungary, the National Institute of Health Insurance Fund Management (NIHIFM) longitudinally collects real-word data and records it in a database.
- The NHIF database contains public-funded health care interventions and procedures
- Hungarian laws grant public access to data.

Colorectal population
- The colorectal cancer population was identified from the NIHIFM databases based on ICD10 codes (C18-C20).
- Timeframe: 30.07.2011-31.12.2016

mCRC population
- Because of the structure of the database we have defined mCRC patients as patients with colorectal cancer who have received treatment based on biological therapy (bevacizumab, cetuximab, panitumumab) in any line.

Study population
- The study population contains those patients who received any chemo- and/or biological therapy that can be found in the Hungarian Chemotherapy Guideline* and died in the study period (8 014 patients).

Endpoints

We examined the 6 months prior to death:
- a) Considering the chemo- and/or biological therapy received and
- b) Regarding the cost of the inpatient and outpatient care, along with the various medicines and especially the painkillers (Natural opium-alkaloids, ATC: N02AA; Phenyl-piperidin derivatives, ATC: N02AB; Oripavine derivatives, ATC: N02AE; Other opioids, ATC: N02AX; Pyrazolonok ATC: N02BB; Anilides ATC: N02BE; Gabapentin, ATC: N03AX12; Pregabalin, ATC: N03AX16; NSAID, ATC: M01A)

Limitations

The number of patients with metastatic colorectal cancer is an estimated number which does not include those metastatic patients who did not receive any biological therapies.
Invoking institutional privacy policies, the NIHIFM provides aggregate data only for categories comprising of at least 10 cases. This publishing practice limits the available dataset on number of patients by treatments.
Some chemotherapy costs are either specially funded or through inpatient care. In Hungary the prices of specially funded drugs are not public because they are purchased through public procurement, therefore we calculated with the consumer price during the study.

References

1. Kathryn Field and Lara Lipton: Metastatic colorectal cancer-past, progress and future 2007

Footnotes

*: Weekly high-dose-5FU, 5FU, weekly low-dose-5FU+FOLINAC, weekly high-dose-5FU+FOLINAC, 5FU+FOLINAC, bevacizumab+capecitabine, Bevacizumab+DeGramont, Bevacizumab+DeGramont/B, Bevacizumab+FOLFIRI, Bevacizumab+FOLFIRI/B, bevacizumab+FOLFOX4, Bevacizumab+FOLFOX4/B, bevacizumab+XELIRI, bevacizumab+XELOX, capecitabine monotherapy, CETUX+FOLFOX-6 (maintenance), CETUX+FOLFOX-6 (initial), Cetuximab monotherapy, Cetuximab(2w)+FOLFIRI, Cetuximab(2w)+FOLFOX-4, Cetuximab+FOLFIRI (maintenance), Cetuximab+FOLFIRI (initial), DeGramont, EEP, EEP+dexrazoxane, ELF, FAM, FAMB, FAMTX, FEM/A, FEM/B, FEM/B+dexrazoxane, FEM/C,FEM/C+dexrazoxane, FOLFOX-4, irinotecan/A, irinotecan-DeGramont, irinothecan 2 hetenkénti, irinothecan 3 hetenkénti, MAYO, MMC+high-dose-5FU, modified FAM, high-dose-CIFU (5FU), PAN+FOLFIRI, PAN+FOLFOX-4, panitumumab, raltitrexed/A, raltitrexed/B, XELIRI, XELOX

Results

Demography

In our study, 8 014 patients received any chemo- and/or biological therapy in the last 6 months prior to the death, approximately half of them within 2 months and 1 853 patients within 1 month prior to death. (*Figure 2.*)
The proportion of the active treatments towards the end of life does not depend on the age, the proportion of the individual age groups is nearly equal within 6 and 1 months (*Table 1.*)

Figure 2: Cummulative number of patients

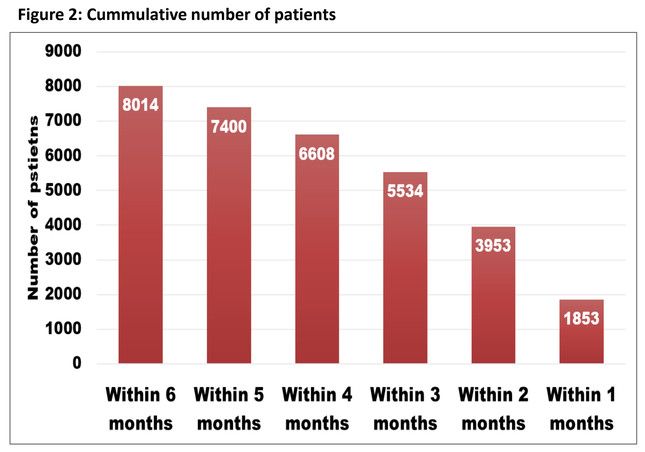
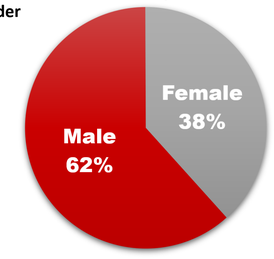


Table 1: : Cummulative number of patients by age groups

Age groups	Within 6 months		Within 1 months	
	Number of patients	Ratio	Number of patients	Ratio
0-49	541	7%	120	6%
50-59	1 583	20%	359	19%
60-69	3 020	38%	718	39%
70-79	2 376	30%	544	29%
80+	494	6%	112	6%
Total	8 014	100%	1 853	100%

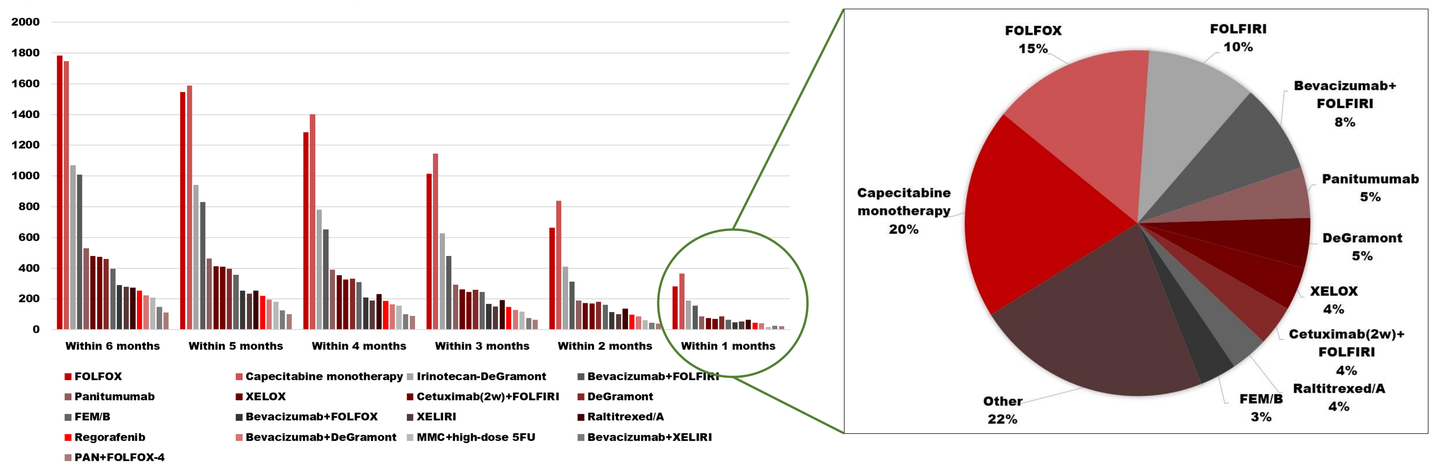
Figure 3: : Cummulative number of patients within 6 months before death by gender



Treatments

According to the Hungarian Chemotherapy Guideline, 52 protocols can be used in colorectal cancer. 41 of them, which means nearly 80 percent of therapeutic options were used in 6 months before the end of life. In the last month of life 21 different therapies were given to the patients, representing 40 percent of all therapeutic options. (*Figure 4.*)

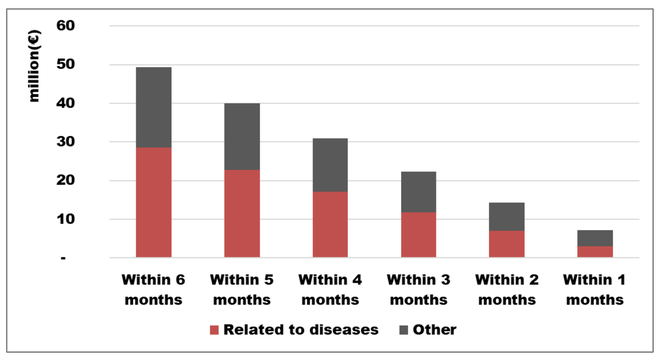
Figure 4: : Cummulative number of patients by treatments



Costs

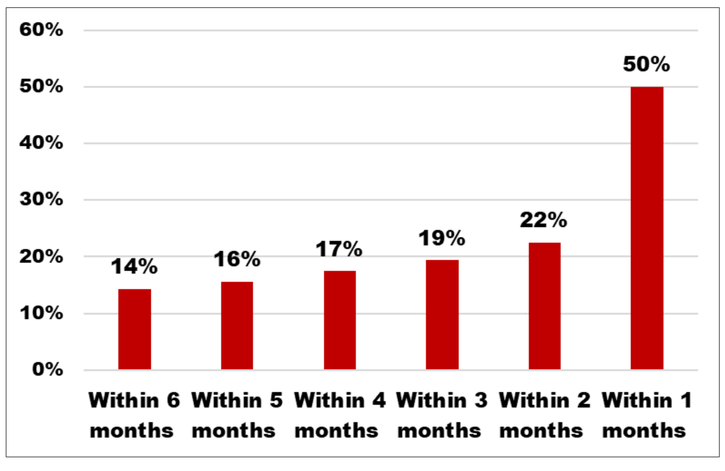
The funding gap, taking into all costs, was approximately € 50 million in the six months prior to the death, and € 6 million in the 1 month before death. From this amount the disease specific cost is nearly 60%, then this rate falls to 40% 1 month prior to death. (*Figure 5.*)
The average cost of one person per month from the disease-specific costs is € 3 420 in 6 months prior to death and € 1 554 within 1 month.

Figure 5: Total cost of cummulativ patients by month and type of cost



Painkillers play a major role in palliative care and as illustrated in *Figure 6*, their costs are increasing as we're approaching the time of death. In the last month of life painkiller costs are excessively high, accounting for half of all medicine expenses.

Figure 6: Painkillers rate by month



Conclusions

- Nearly half of all mCRC patients get active therapies 2 months before death and nearly quarter of the patients get therapies 1 month before death.
- The proportion of active treatments within age groups do not change towards the end of life.
- A wide range of treatments are being used even in the last month of life. Quarter of the actively treated patients have received biological treatment as well.
- In terms of cost outflow, the specific cost of the disease is nearly 60% of the total cost, showing a decreasing tendency towards the near-death period. However, the costs related to comorbidities increase during this stage.
- The cost of painkillers is proportionally increasing within all medication costs, and rises prominently in the last month before death.