Follow-up after curative surgery for colorectal cancer

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Abstract

Approximately 1 in 3 colorectal patients treated by surgery with curative intent will develop cancer recurrence, and most of them will die from disseminated disease. Post-operative follow-up aims at improving these ominous figures. Any strategy is justified as far as it influences evolution : global survival, disease-free period, quality of life. The value of follow-up for patients remains controversial. The literature review suggests that more intensive follow-ups lead to an increased number of reoperations, a more aggressive oncological approach in non resectable cases, provide data for an efficient quality control and have a major cost impact. Surveillance is appreciated by the patients who are confident in the efficacy of such policies. On the other hand, the benefit on the outcome of the patients is not formally established. Outcome might depend on tumoural characteristics rather than on the moment of recurrence detection. Not all schedules are alike, and CEA determination is required. Including all patients in intensive programs is not evidence-based medicine and is highly cost ineffective. Follow-ups must be tailored to individual characteristics. The most intensive ones are dedicated to the patients with the highest risk of treatable recurrence : high risk patients (tumour site and stage), able and willing to undergo reoperation (age, general condition, ...). Research should try to determine curability tumoural factors (genetic tumour factors). In the meantime, and for the other patients, the most effective follow-ups could be programs in which only a few tests are routinely used : referential colonoscopy, history and physical examination, CEA determination and a rectoscopy for rectal cancers. (Acta gastroenterol. belg., **2001**, 64, **268-271**).

Key words : colorectal cancer, recurrence, follow-up, surveillance.

Introduction

Approximately 1 in 3 colorectal patients treated by surgery with curative intent will develop cancer recurrence (local recurrence, distant metastases, metachronous colon cancer), and most of them will die from disseminated disease. This is the reason why most patients enter a follow-up program with the aim of detecting recurrence as soon as possible, before symptoms occur, and of improving the results by early re-resection. Such a policy is attractive for both patients and physicians. Post-operative follow-ups are practised throughout the world and consume a considerable amount of resources and time. Specialised colorectal cancer surgeons, in general, perform more intensive follow-ups than general surgeons. It is however not clearly known whether, or to what extent, follow-up benefits the patient (1,2,3). The main questions are : does an efficient treatment of the recurrence exist, and are the results improved by earlier detection and treatment ?

Local recurrence the risk of increases as one progresses from the colon to the rectum. Therefore, it will be focused on pelvic recurrences of rectal cancers, and on distant metastases from rectal or colonic origin.

Results of the treatment

Local recurrence of rectal cancer

Reoperation is the only chance for cure. The completeness of the resection with free resection margins (RO resection) is the unique factor that has a significant impact on survival (4). Many patients unfortunately have developed a too extensive local disease, or present synchronous distant metastases. The postoperative mortality rate is low but the morbidity is very frequent and severe (5). The 5-year survival ranges from 10 to 30 %. These results are observed in highly selected populations, as only 15 to 40% of the patients with pelvic recurrences are operated on. For most of them, surgery reveals invasive and useless and a mere 10% of patients will benefit from reoperation with an overall survival for five years (6). A strict selection of the patients is required to avoid a undue morbidity and considerable expenses.

Local recurrences of colon cancer

From the rare data of the literature, it appears that the prognosis is dismal, with reported curability rates of 0.2 to 1.7% after surgery. In our experience, most patients (90%) with colon cancer local recurrence had simultaneous distant metastases (peritoneal, hepatic, ...) (personal data).

Metachronous hepatic metastases

Corrected 5-year survival after complete surgical resection of hepatic metastases averages 35% (7). Only a minority of patients with metachronous metastases (20%) have been offered such a curative resection (7). On the other hand, it is noteworthy that very few symptomatic patients are operable. Early chemotherapy could improve survival and prolong the symptom-free period in metastatic patients (NGITA)(8).

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Table I. — **Literature review**

	Type	n	earlier detection	resection for cure	improved survival
Muller 1994	retro fup <-> no		Y	Y	NS
Bruinvels 1994	meta (*)	3.283	Y	Y	Y (?)
Makela 1995	random	106	Y	N	NS
Ohlsson 1995	Intensive - usual random	107	NS	NS	NS
Kjeldsen 1997	Intensive <-> no random	597	Y	Y	NS
Pietra 1998	fup <-> o random	207	Y	Y	Y
Rosen 1998	3 - 6 months rectal cancer meta (*)	2.005		x 2.5	Y

(*) meta-analysis.

Impact of the postoperative follow-up

Could these disappointing figures be improved by intensive follow-ups, leading to earlier detection, higher resectability rates and improved survival ?

The series of the last years stress that more intensive follow-ups lead to earlier diagnosis of recurrence, to an increased number of reoperations with curative intent, but without significant influence on the survival for a majority of patients (table I) (1,9,10,11,12, 13,14). Not all schedules are alike and CEA orientated follow-ups reveal more sensitive.

The lack of evidence of a clear benefit could be due to methodological biases : insufficient population samples, limited statistical power,... Prospective randomised trials are difficult to conduct as there are heaps of schedules to compare. Mathematical simulation models identified an increased cost, without "quality-adjusted" life expectancy improvement as result of more intensive follow-ups (15).

Data from the literature suggest that the curability of the recurrence is not a time dependent phenomenon, but is mainly a characteristic of tumours that remain stable for relatively long periods of time. The identification of such characteristics, independent of the initial stage, could help select patients for follow-up and treatment.

To date, beside a positive effect on the quality control and patient's support, systematic intensive follow-ups have demonstrated their cost, but not clearly their influence on the disease outcome. It has not been not excluded that well chosen patients take some benefit from follow-up and all endeavours must be devoted to identify them.

Practical surveillance guidelines

Any strategy is justified as far as it influences evolution : global survival, disease-free period, quality of life. That means that a curative treatment must exist, at least for some patients, that improved survival is gained in the cases of presymptomatic resection, that benefits due to curative and palliative operations overcome the non financial costs of an earlier detection of the incurable stages and of false positive detections, and that the cost-effectiveness ratio is sufficient to justify a systematic routine use.

Detection of metachronous adenomas and cancers

A close follow-up has no influence on the survival rate after treatment (9,10) . A 3-year long term survey, up to 75 years of age, is advised (16). Closer follow-up is required in the cases of synchronous adenomas and in hereditary cancers (HNPCC) (17).

Local recurrences

Some studies demonstrated that a yearly colonoscopy only rarely demonstrated an otherwise asymptomatic recurrence and had no influence on the survival and the resection rate as well (18,19,20).

Detection of metastases

There is no general agreement. A yearly CT scan detects more easily the hepatic metastases but the resection rate of the so detected metastases is not significantly increased (20). Chemotherapy may improve the short term survival and improve the quality of life (21) ; the results could be still better in the cases of asymptomatic metastases (8).

Value of the routine investigation methods

Levels of evidence and guideline grades are rated according to standard scales (I to V, and A to E respectively) (3,22) (table II).

CEA (II C).

Increased CEA value happens to be the first sign of recurrence in symptom free patients . The benefit of routine monitoring of CEA on the survival is still controversial (1, 12,23) and, on the basis of the current data, is

Table II. — **Recommended surveillance guidelines**

	Evidence	Recommendation	Routine use
CEA	II	C	yes (no)*
History			
Physical Exam	V	panel consensus	yes
Liver test	IV	D	no
Faecal occult blood	II	C	no
CT liver	II	A	no
Chest x-ray	II	B	no
Colonoscopy	I	B	no
Sigmoidoscopy	IV	C	yes (**)
Pelvic imaging	IV	D	no

** rectal cancer.

not recommended (3,22,24,25). However, if resection of liver metastases would be clinically indicated, it is recommended 3 to 6 monthly CEA determination be performed in the patients with a stage II or III of the disease, although the benefit is not yet demonstrated (22).

History and physical examination (V, panel consensus)

In the absence of objective data, history and physical examination are recommended every 3 to 6 months for the first 3 years, and annually thereafter.

Liver tests (IV D) and occult blood test (II C) :

The data are sufficient to suggest against the regular monitoring of liver tests.

Computed tomography of the abdomen (II A, II B).

Liver imaging has not been demonstrated as being able to detect metastatic lesions before the other tests. In most cases, there is a synchronous increased CEA value and the value of CT scan in the patients with normal CEA levels has not been proven.

Data are sufficient to recommend against routine CT scanning. Role of imaging is limited to detect abnormalities in cases of increased CEA or of clinical symptoms..

Liver ultrasound (II B) : not recommended in routine use.

MRI (V D). To date the routine use of MRI is not able to significantly and cost effectively improve survival and cannot be recommended.

Chest RX (II B). Routine use has no significant impact on survival (12). RX is indicated in cases of elevated CEA values or of suggestive clinical symptoms.

Barium enema (IV D) and *colonoscopy* (I B) : have a good sensitivity in detecting intraluminal recurrences, but most anastomotic recurrences begin in the extraluminal tissue and secondarily invade the bowel wall, with late disruption of the mucosa. Yearly colonoscopy has no influence on the resection and survival rates, and routine use is not recommended (3,22). It is however important that all patients have a complete examination of the colon in the perioperative period to control the absence of benign or malignant synchronous lesions. Colonoscopy is recommended every 3 to 5 years to detect metachronous lesions. A more aggressive policy is required for the HNPCC patients and for patients with synchronous adenomas.

Rectosigmoïdoscopy (rectum cancer) (II C, IV C, panel consensus) : is advised every 6 months in the patients who were not given radiotherapy, even if the influence on the survival, independently of the others tests, has not been demonstrated. Early diagnosis of a recurrence at the suture line in a non irradiated patient could improve survival and quality of life (3,22).

Endorectal ultrasound (V D) .There is no argument in favour of routine use of endorectal ultrasound in the survey of patients operated on from a rectal cancer.

Pelvic imaging (IV D) : There is no indication for routine use in asymptomatic patients, or in irradiated patients.

Conclusions

"The tradition of follow-up is expensive and prospective evidence for any cost benefit is needed to justify continuous use of our limited resources in this area of patient care" (26).

More intensive follow-ups lead to an increased number of reoperations, a more aggressive oncological approach in non resectable cases, are appreciated by the patients who are confident in the efficacy of such policies, allow an efficient quality control and have a major cost impact. The benefit on the outcome of the patients is not formally established. Outcome might depend on tumoural characteristics rather than on the moment of recurrence detection.

Not all schedules are alike, and CEA determination is required. Including all patients in intensive programs is not evidence-based medicine and is highly cost ineffective. Follow-ups must be tailored to individual characteristics. The most intensive ones are dedicated to the patients with the highest risk of treatable recurrence : high risk patients (tumour site and stage), able and willing to undergo reoperation (age, general condition, ...).

Research should try to determine curability tumoural factors (genetic tumour factors) that establish the grounds of a rationale selection for follow-up and possible reoperation. In the meantime, and for the other patients, the most effective follow-ups could be programs in which only a few tests are routinely used : referential colonoscopy, history and physical examination, CEA determination and a rectoscopy for rectal cancers. Finally it must be recalled that the main cause of pelvic recurrence is an inadequate resection of the primary and of its drainage pathways. Recurrence prevention is certainly more efficient that treatment, even early.

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