

The role of the multidisciplinary cancer team in reducing cancer morbidity and mortality rate in Indonesia with colorectal cancer as a model

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Abstract

In Indonesia, the incidence of colorectal cancer (CRC) has risen from obscurity (outside the top 10) to its present high – number two for males and number three for females (Globocan 2012). These figures are not without reason. Globally, about 25% of patients are at stage IV CRC when they visit their doctors – more than 34% in a report from Indonesia - and it is assumed that 85% of patients with stage IV CRC have unresectable liver disease with a 5-year survival rate of less than 5%. The concept of an integrated team concept or multidisciplinary care team (MDT) has open the chance for a more aggressive management with better outcome, in which unresectable cases may become resectable and the survival rate of less 5% can be improved to more than 30%. Therefore, the purpose of treatment can be shifted from palliative to curative care. Various studies have demonstrated that MDT can improve survival rate of CRC patients and it is also beneficial for its members. MDT can reduce cancer morbidity and mortality rate in Indonesia.

Keywords: *colorectal cancer, morbidity, mortality, multidisciplinary care team*

Abstrak

Di Indonesia, insidens kanker kolorektal meningkat dari tidak termasuk 10 besar menjadi tinggi, nomor dua untuk laki-laki dan nomor tiga untuk perempuan (Globocan 2012). Hal tersebut bukannya tidak ada penjelasan. Sebanyak 25% pasien berada dalam stadium 4 ketika mereka ke dokter, lebih dari 34% pada satu laporan dari Indonesia. Diduga 85% pasien dengan stadium kanker kolorektal stadium 4 mempunyai keterlibatan hati yang tidak dapat dioperasi dengan angka ketahanan hidup lima tahun kurang dari 5%. Konsep tim multidisiplin terintegrasi (MDT) membuka kesempatan manajemen yang lebih agresif dengan hasil yang lebih baik. Kasus-kasus yang tidak dapat dioperasi menjadi dapat dioperasi dan angka ketahanan hidup lima tahun meningkat dari 5% menjadi 30%, sehingga target terapi berubah dari paliatif menjadi kuratif. Beberapa penelitian memperlihatkan bahwa MDT dapat memperbaiki angka ketahanan hidup pasien kanker kolorektal dan juga menguntungkan anggota tim. MDT dapat menurunkan angka morbilitas dan mortalitas pasien kanker kolorektal.

Kata kunci: *kanker kolorektal, morbilitas, mortalitas, tim multidisiplin*

This article is translated from the author's professorial inauguration speech on January the 16th 2016 in Depok

Background

Cancer has become a great problem difficult to manage. In a global scale, the number of cancer deaths will be greater than the total number of deaths caused by AIDS, malaria and tuberculosis combined. Moreover, the number will increase up to 80% by 2030 if it is not managed seriously. The more concerning issue is most of the deaths occur in developing countries.¹ The World Health Organization (WHO) defines that over half of new cancer cases and two third of deaths occur in countries with low to moderate income and those countries only have 5% resources and capability of total global rate. One of those countries is Indonesia. The numbers will be more significant as it has reached over 50% of total global rate with 8 million of new cases (57% of total global rate), 5.3 million of cancer deaths (65% of total global rate) and 15.6 million cases of 5-year survival patients (48% of total global rate). Incidence rate of cancer differs from country to country. Based on its order, the most common cancers in developing countries are lung, breast, stomach, liver and colorectal cancers (GLOBOCAN 2012).

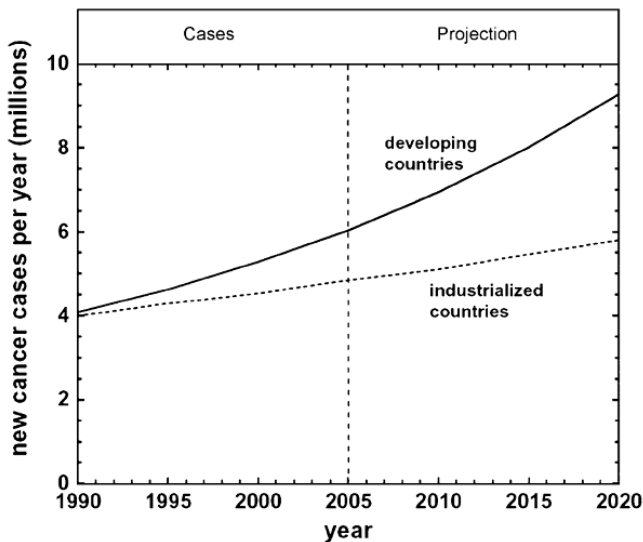


Figure 1. Estimate of predicted cancer incidence in developing and developed countries²

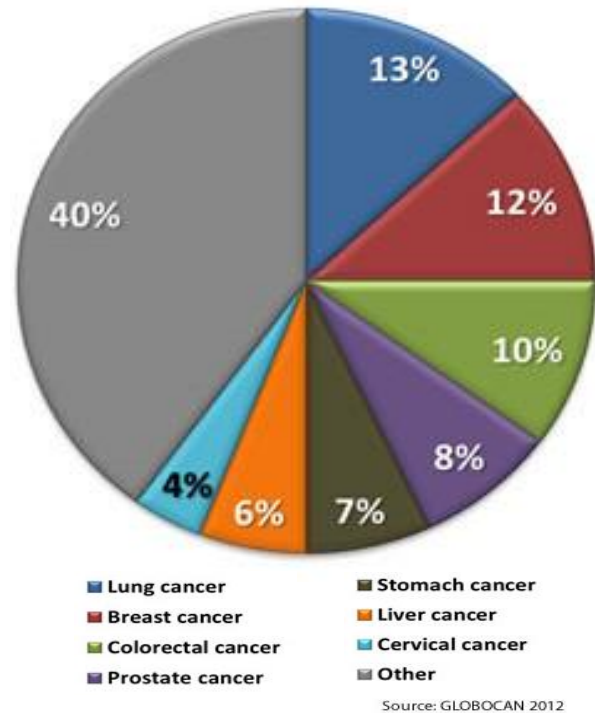


Figure 2. Most common cancers worldwide in 2012

Colorectal cancer (CRC) is 10% of all cancers or about 1.4 million cases. In Indonesia, the number of CRC documented in a representative cancer hospital is increasing each year. An investigation of data from the division of Pathology Anatomy, University of Indonesia, shows that the number of CRC is more than 30% in patient with age less than 40 years, while the number only reaches 3% in the developed countries. It will bring great impact for Indonesia as the disease is found among those skill in their productive age. Cancer occurs due to a combination of genetic susceptibility and environmental factors, in this case lifestyle, and CRC is the most common cancer that greatly associated with changes of lifestyle.³ Most cases are sporadic and only several cases are hereditary. It indicates that the incidence of cancer "changes with age", a very relevant condition nowadays.

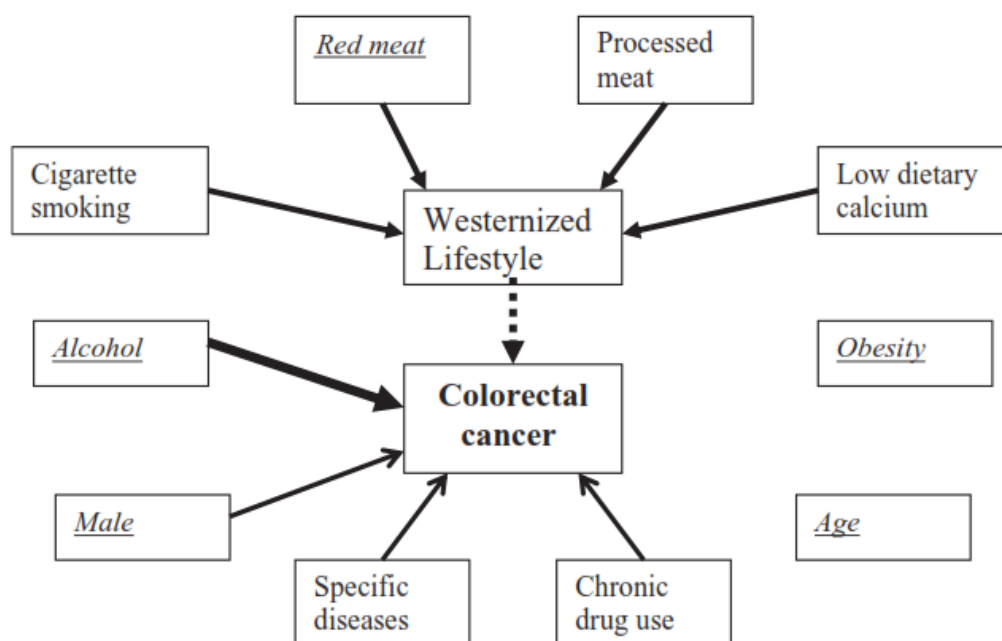


Figure 3. Major factors in the pathogenesis of colorectal cancer⁴

Treatments available for the cancer are: 1) Surgery; 2) Chemotherapy; and 3) Radiotherapy (for rectal cancer). Most of the cancers should be cured by a fine surgery when they are found in early stage, i.e. at stage I and II. Hereby, it starts to get more obvious that the cancer is worth considering. The 5-year survival rate depends on the stage of the disease. At stage IV, the 5-year survival rate is less than 5%.⁵ Unfortunately, about 25% of patients who seek treatment are at stage IV of CRC (with metastasis) and overall, 50% of them will have liver metastasis. About 85% of patients with stage IV CRC have unresectable liver disease.³⁻⁵ The rate of 10-year survival rate for patients with stage I is 90%; however, for patients who are at stage IV and cannot undergo surgery, the rate is only 5%.⁴ Therefore, for patients with liver metastasis, the treatment strategy must be directed for resection.⁶ Treatment of cancer is very complex and involve a lot of medical staff, which may cause poor communication and coordination. It brings a change in medical approach, i.e. from an individual single doctor approach into collaboration or team approach, which is known as the multidisciplinary approach, an approach of a collaborating team (multidisciplinary team or MDT). MDT has become a standard service since 2007 as a management guideline for CRC in Britain and Ireland. Since 2009, the MDT has been implemented in almost all of European countries. In 2013, MDT has

become a gold standard for surgical and oncology management of all kinds of cancers. MDT has been identified as the key management for high-quality cancer treatment. Multidisciplinary teams (MDTs) aim to improve communication, coordination and decision making among professional medical staff. It has been adopted in some western countries, but a less common model in Indonesia.

The Concept of MDT

The multidisciplinary team is a health care service based on an integrated team approach in considering relevant treatment option and collaborative planning for patient care.⁶ The team concept is an integrative part of the effective MDT function considering that the needs of communication and collaboration are very essential. Patients involvement in MDT is also an important factor to confirm that the service is patient-centered so that the patients and their family understand the diagnosis and treatment options. A survey using 21 questions has explored the principles of MDT for daily implementation. The results of the survey demonstrate some principles of MDT, i.e. 1) A team approach involving integrated disciplinary of specialists, general physicians and other medical staffs; 2) Communication; 3) Appropriate management and care according to the standard; 4) Full access to the therapy unrestricted

to geographical or institutional issues; 5) Patient involvement in decision making.⁷

MDT plays an important role in routine meetings to discuss the plan of patient care prospectively.⁸ MDT intervention can be done in transmission/transitions starting from diagnosis up to management of treatment. There are some points where MDT can perform intervention, i.e. 1) Planning of treatment such as surgery, radiation or chemotherapy; 2) Post-treatment care and surveillance for the next treatment; 3) Decision on the end of life or palliative

care that needs modification on treatment planning. Moreover, MDT intervention can be done at various points such as at follow up of an oncologist who refers his patient to MDT or for new cases or recurrent tumor.⁹

Multidisciplinary care for cancer patients may involve different and various clinical staffs.¹⁰ The main members of MDTs team usually consist of oncologists (medical, surgeon, radiotherapist), clinical pathologists and radiologists. To increase the patient's quality of life, it is necessary to include psychiatrists, nutritionists, nurses as well as spiritual counselors.

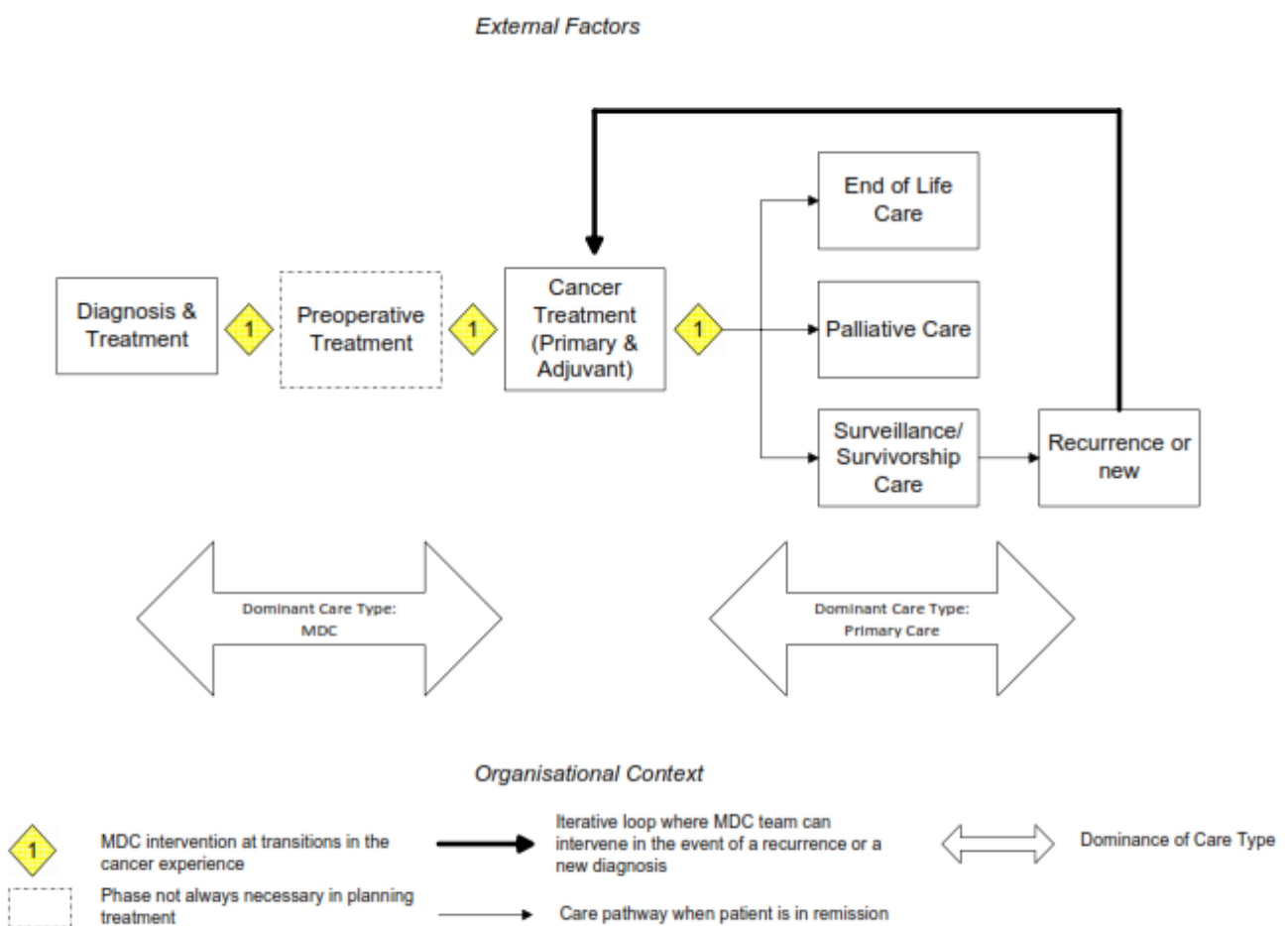


Figure 4. Multidisciplinary treatment intervention across transitions in cancer care⁹

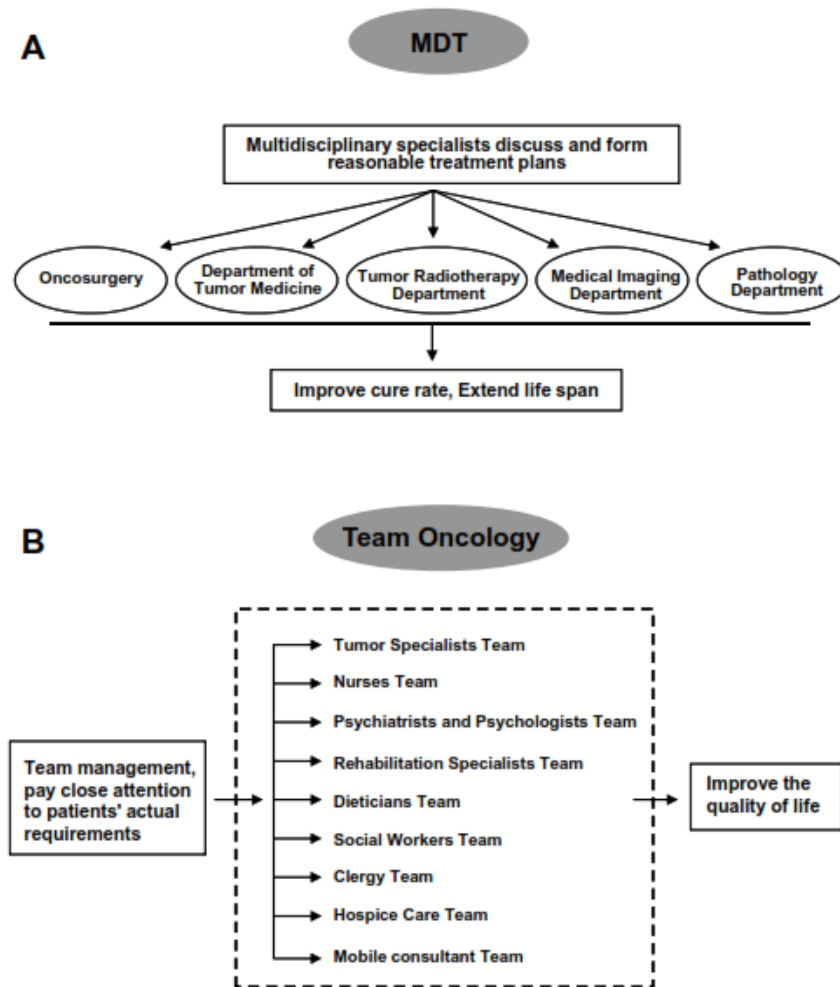


Figure 5. The composition and purpose of MDT (A) and team oncology (B)¹¹

Benefits of MDT

A. Benefits of MDT for members

MDT improves communication, knowledge and liaison of the colleague members.^{12,13} Results of interviews in a study conducted by Bellardita et al showed that members of MDT feel the benefits as they get important and accurate information about the disease and treatment so that they can optimize the quantity and quality of information given to the patients and their family.¹⁴ Case discussion in MDT meeting provides a very good opportunity to train doctors and nurses.^{13,15} The team meeting may help in communication and sharing information among members, particularly among the specialists in hospitals and general physicians in primary care units.¹⁶ A survey in England for MDT members shows that 90% of them agree that working as MDT brings benefits

to the member welfare and 81% of them agree with increased work satisfaction.¹⁷

B. Benefits of MDT for patients

MDT brings beneficial impacts for patients because the patients are discussed in details by various medical staffs who are experts in their fields. It allows time saving for diagnosis and treatment as well as better planning on treatment to be more appropriate with the evidence-based guidelines.¹⁸⁻²⁰ It has been demonstrated that patient satisfaction on MDT is excellent.^{21,22} Patients have reported that the expert team taking care of them has a good coordination and they can feel greater attention.¹² MDT enables patients to be more active in considering the best treatment option for them. Communication with patient is also important to discuss results of recommendation in MDT meeting.^{10,22}

Evaluation on condition of the patient becomes more comprehensive, including the psychological point of view, which is usually left behind.¹³ A recent study in Scotland shows that there is a substantial improvement on life expectancy of cancer patients with MDT than those without MDT.²³ Various other studies also show an increase of life expectancy in cancer patients.²⁴

MDT and Colorectal Cancer

In colorectal cancer with metastasis, the MDT group discussion has a very special role, which is relatively different from condition for other kinds of cancer as the decision to make determine whether the patient will undergo liver resection surgery or not. It is greatly associated with treatment success and ultimately the patient safety is at the real stake. For example, there are questions such as is there an effort to increase resectability of colorectal cancer that has liver metastasis? To resect or not to resect?

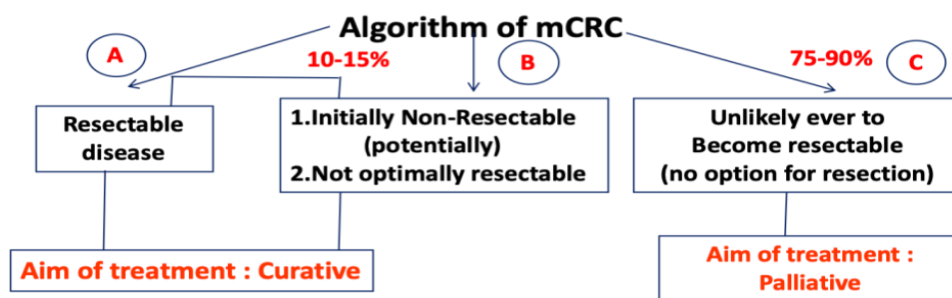


Figure 6. Treatment choices and algorithm for patients with colorectal liver metastases.²⁵

An evaluation using MDT opens an opportunity for a more progressive treatment with better outcomes.²⁶ MDT decision allows tumor resection to be performed although in stage IV with far better outcomes and similar life expectancy with those at stage I-III.^{27,26} Evaluation for tumor resection needs consideration of various issues. In CRC with liver metastasis, an analysis on liver anatomy, histology and function can be completed in MDT meeting as

there are many inputs from hepatobiliary surgeons, radiologists, medical hepatologists and experts in pathology anatomy. Another study also shows reduced mortality rate in MDT with liver surgeons / oncologists (P=0.0001).²⁸ MDT decision result causes revision on cancer diagnosis and nursing care plan on new cancer case with better results.^{10,29,30} Therefore, the purpose of treatment can be shifted from palliative into curative care.

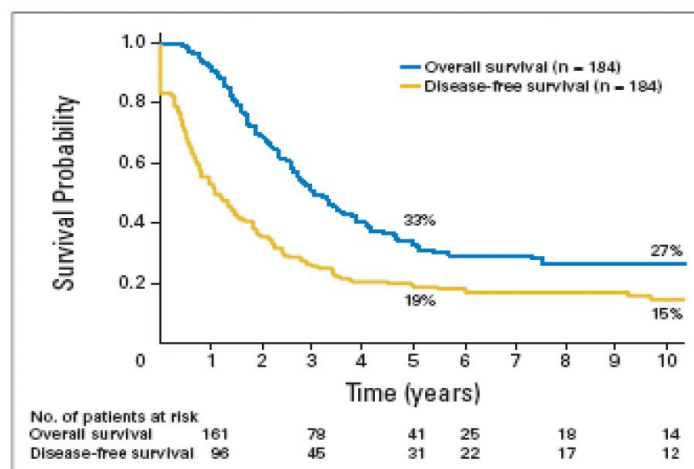


Figure 7. Unresectable liver metastases: 20-25% long-term survival after induction chemotherapy and resection³¹

12-month landmark analysis evaluated the impact of liver resection on OS

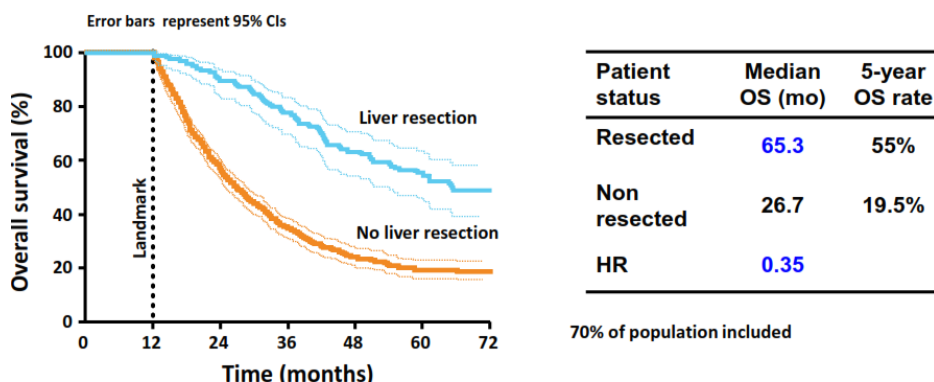


Figure 8. Liver resection dramatically improves long-term survival and offers a real chance for cure³²

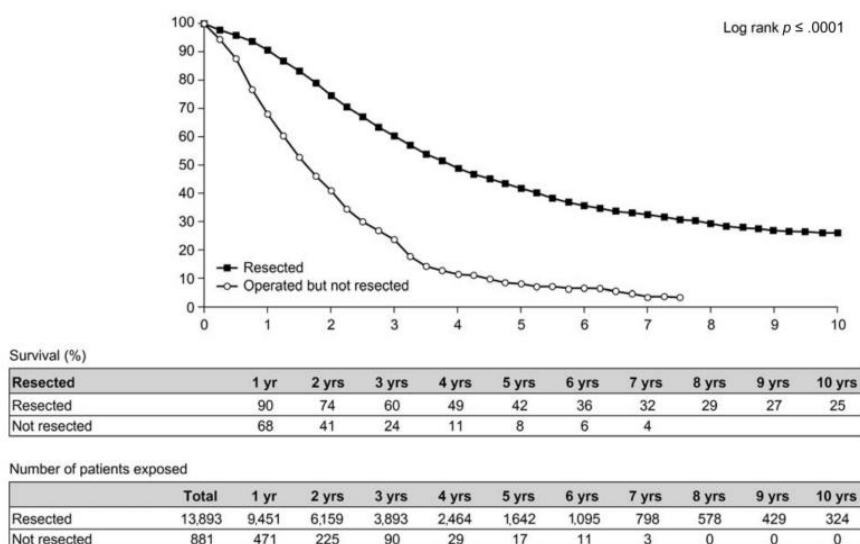


Figure 9. Overall survival probability after a first resection for colorectal liver metastases in 14,774 patients from theLiverMetSurvey³³

The Impact of MDT on Survival of CRC Patients

MDT has significantly improved survival.³⁴ In a study of 310 patients who were seeking treatment from surgeons, an analysis was performed before and after introducing MDT. The MDT status has been demonstrated to be an independent factor for survival in hazard regression analysis ($P=0.044$).³⁵ The survival rate of patients with CRC cancer increased from 58% into 66% in MDT group ($P=0.023$) (Graph 1). It is caused by a correct use of chemotherapy. A study on rectal cancer has found an overall better survival in MDT group compared to

non-MDT group with a level of significance of $P=0.003$ (Graph 2).³⁶

Some other studies have also demonstrated a significant correlation between MDT and increased survival (Table 1). Morris et al.³⁷ conducted a study using MDT score system. The study shows a 25% increase of MDT score, which is correlated to reduced mortality risk of 3% in patients with colorectal cancer. MacDermid et al found that MDT status is a significant predictor of receipt of chemotherapy and mortality rate.³⁵ An evaluation of MDT using correct imaging prior to chemotherapy will minimize the occurrence of 'missing' metastasis.²⁷

Table 1. Results for studies examining the correlation between MDT and survival²⁴

	Study Design	Survival results
Morris et al. ³⁷	Population-based retrospective cohort	Overall 5-year survival: 38.3% Median 5-year survival: 38.1% Adjusted hazard ratio: 0.97 (95% CI 0.94–0.99, P =0.01) with 25% increase in MDT score—25% increase in team score is associated with 3% reduction in risk of death for all colorectal patients
Mac Dermid et al. ³⁵	Before–after series, single institution	3-year survival 76% (pre-MDT) vs. 70% (post-MDT) for DUKES B (P =0.486) 58% (pre-MDT) vs. 66% (post-MDT) for DUKES C (P =0.023) Receipt of adjuvant chemotherapy: 13% (pre-MDT) vs. 31.3% (post-MDT) (P =0.0002) MDT status is a significant predictor of receipt of chemotherapy (OR 3.56, CI 1.90–6.68, P <0.0001) MDT status is a significant predictor of mortality (HR 0.73, CI 0.72–0.98, P ¼0.044)
Lordan et al. ²⁸	Prospective cohort, single institution	Overall survival Multidisciplinary Care and Survival 131 1 year—90.3% (referral from MDT with surgeon/oncologist) vs. 90.3% (direct referrals) 3 year—76.2% (referral from MDT with surgeon/oncologist) vs. 54.1% (direct referrals) 5 year—49.8% (referral from MDT with surgeon/oncologist) vs. 43.3% (direct referrals) Overall mortality is significantly decreased with referral by MDT with liver surgeon/oncologists (P =0.0001) Disease free survival 1 year—65.4% (referral from MDT with surgeon/oncologist) vs. 70.3% (direct referrals) 3 year—31.0% (referral from MDT with surgeon/oncologist) vs. 37.6% (direct referrals) 5 year—27.1% (referral from MDT with surgeon/oncologist) vs. 27.9% (direct referrals) Overall disease-free survival is not significantly decreased with referral by MDT with surgeon/oncologists (P ¼0.205)

MDT: multidisciplinary team
cited with modifications from reference 24

Obstacles and Solution

An Australian survey discusses some important obstacles in implementing MDT, i.e. lack of time, less resources, small case burden and administrative problems.³⁸ A study by Walsh et al. has found obstacles in coordinating nursing care for cancer patients concerning the role and responsibility of the professionals and inadequate communication between specialist and primary care. The presence

of hierarchy that draws limit line between specialists and general physicians as well as nurses has caused problematic decision making, particularly when the nurses are disregarded and their contributions are being overlooked.³⁹

The obstacles can be managed by giving institutional support for MDT, providing good leadership and adequate infrastructure and encouraging willingness from each of MDT member to be inclusive and

respect suggestions from each of team member. Therefore, we can work on promoting efforts to increase efficiency and optimize care through a collective policy. In order to realize an effective and continuous MDT approach, we need supports from various parties including the policy makers or the government, colleagues and of course, the patients themselves.^{40,41}

Conclusion

CRC is still a problem worldwide, particularly in developing countries. According to data that have been successfully obtained in one of representative cancer hospital in Indonesia, the incidence of CRC is increasing each year. MDT approach is necessary to increase survival rate of the patients. A concept of integrated team approach opens an opportunity for a more aggressive treatment with better outcomes; therefore, the unresectable cases can become resectable and life expectancy of less than 5% can be more than 30%. MDT involves various components and thus it needs supports from every component to reduce morbidity and mortality rate of cancer in Indonesia.

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