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Which is the best for cancer treatment? Surgery or chemotherapy

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In fact the basic situation we are trying to achieve for cancer treatment at the present time with immunotherapeutic agents led by programmed death protein 1 (PD-1) inhibitors, in the past with targeted agents is to facilitate the treatment algorithms, so eliminating the need to some of the treatment options. In this review our aim is to determine the superiority of surgery or chemotherapy by the contribution of trials especially publicated recently superior for chemotherapy. For example for renal cell cancer (RCC), radical nephrectomy is the first step in the treatment except accompanied by a full immune storm case with a very poor performance score and widespread metastases in the brain. First The European Organization for Research and Treatment of Cancer trial (EORTC) in 2001 showed an increasing gap from 7 months up to 17 months for overall survive (OS) with interferon (IFN) vs. IFN + nephrectomy.[1] In fact, the idea of removing primary organ in a metastatic case is extremely sensible for RCC. Because primary immune war starts in the removing place. After these 2 studies in 2006 The Food and Drug Administration (FDA) approved trosin kinase inhibitors (TKI) (theoretically appears very effective agents such as sunitinib, pazopanib) as standard first line treatment of metastatic RCC (mRCC).[2] This brought to mind if they could catch the success for treatment without having radical nephrectomy. The aim of HENG classification is to answer the question that who has low or high risk in terms of response to TKI therapy. The French Carmena study which we still expect respectively the results, will answer the question of sunitinib for the first line treatment for mRCC. 2 beautiful studies gave us background information about the efficacy of radical nephrectomy in mRCC patients before the conclusion of Carmena study. In the publication Journal of Clinical Oncology (JCO) in June 2016 (N. Hanna et al.) 15.390 mRCC patients who treated with targeted therapies between the years 2006–2013 were examined from the national cancer database.[3] Only for 35% of these cases radical nephrectomy were applied. The addition of nephrectomy demonstrated its contribution as an increase in overall survive (OS) from 7.7 months to 17.1 months. Surgery seems to be a better treatment option for mRCC as first line treatment.

In another Italian meta-analysis (F. Petrelli et al., Cancer Genitourinary 2016) including 12 studies and 39.953 patients using targeted therapy, demonstrated that cytoreductive nephrectomy reduced death more than 50%.[4] Of course to see the results of Carmena study is important because it is a phase III and prospective study. But the value of this trial may be reduced because about 500 patients were included in this study.

Although the current, retrospective, French, Association des Gastro-Entérologues Oncologues (AGEO) study is the first time examining the comparison depending on miss match repair (MMR) in stage II and stage III colon cancer patients treated with adjuvant alone 5 floro uracil (5FU) or 5FU + oxaliplatin combination vs. surgery.[5] The study group is composed of with dMMR patients. Previously in a pooled National Surgical Adjuvant Breast and Bowel Project (NSABP) data study including 207 patients showed a positive contribution to disease free survival (DFS) independent from MMR by adding oxaliplatin to 5FU.[6] But this study did not have surgery line alone. A total of 433 patients were included in AGEO study and 246 patients were in stage II, and 187 patients were in stage III. In stage II 60% of patients had high risk in terms of recurrence. The median follow-up time was 47 months, and 263 patients underwent alone surgery, 119 patients underwent surgery + adjuvant chemotherapy (5FU + oxaliplatin), 51 patients underwent surgery + adjuvant chemotherapy (only 5FU). 16.7% of patients in Stage II, and 69% of the patients in stage III received adjuvant chemotherapy.[5]

Indeed in stage II colon cancer patients the status of MMR is an indicator of good prognosis and not necessary to adjuvant chemotherapy because of resistance to 5FU. We did not have any

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study to respond the question of how to treat high-risk stage II with dMMR patients until the AGEO study. In AGEO study with high-risk stage II patients adjuvant oxaliplatin-based regimens provide better DFS advantage. Of course, the results of the study basically pointed out that in stage III colon cancer patients 3-years DFS for only surgery line is 75.2%, for surgery + 5FU is 66.4%, for surgery + 5FU + oxaliplatin is 84.2% ($p < 0.001$). Even if the study was retrospective, control group was alone surgery line for the first time, as well as containing high number of patients. The comment may be briefly that oxaliplatin can eliminate the resistance of 5FU with dMMR patients. In stage 4 colon cancer patients with dMMR status immunotherapy is effective. This can be predictive for PD-1 inhibitors instead of combined chemotherapy when combined agents were not wanted to give to stage II patients.

A last short detail for ovarian cancer. 12 cycles of bevacizumab or treatment continued by bevacizumab until progression after bevacizumab + carboplatin + paclitaxel treatment have revealed statistically significant contribution to DFS against standard carboplatin + paclitaxel in the last American Society of Clinical Oncology (ASCO) ICON 7[7] ovarian cancer study with 1528 patients. It was reported that approximately 85% of the patients in this study were operated primarily. In ASCO it had been told that surgical treatment is very important for treatment outcome in ovarian cancer and if the residue tumor remains <1 cm after surgery that means not visible, so immediate surgical approach would be true. But on August 8th in the new ovarian cancer guidelines published in JCO, giving initially neo-adjuvant chemotherapy would be more favorable for morbidity and mortality and also in terms of life quality. Because most of the cases applied at late-stage and had widespread disease manifestations. In the guidelines it was expressed that the combination of cytology specimens and the ratio of CA125/CEA (>25) can be used by the oncologists for diagnosis. After 4 or less cycles of neoadjuvant chemotherapy, interval surgical management have been proposed but patients who could not obtain a good chance of surgical management remained extremely with poor prognosis. As a result in the new JCO guideline with the recommendations of 4 phase III studies the quality of life for stage IIIC and IV patients, neo-adjuvant platinum-based chemotherapy was stated non-inferior to the standard immediate surgery as comparison.

As a result the decision of surgery or chemotherapy must be made according to multifactorial states. The organ, stage, immunohistochemistry are all effective for the decision. In the past surgery was superior but by new chemotherapies especially by the contribution of targeted agents and more clinical trials about some diseases with more participants chemotherapy may be superior in the future.

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