Multidisciplinary challenge for the oncologist and surgeon: Gastrointestinal stromal tumors. Follow-up of a tertiary surgical department

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Background: Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors in gastrointestinal system with most found in stomach. With the characteristic of being mostly c-KIT positive (CD117) as a mutation carrier, genetics is a part of the management of GIST, helping both the surgeon and the oncologist. The diagnostic and the definition of the characteristics of tumor will help to define the response to treatment procedures, which is fundamental for oncologists and surgeons to create an algorithm for their patients. The follow-up should be done both with oncologists and surgeons in order to define early recurrences and metastasis. This study is based on the follow-up of GIST patients operated in a tertiary general surgery department.

Methods: 43 patients have been operated on between January 2017-December 2018. Routine preoperative diagnostic findings and postoperative pathological evaluations are identified and noted. In our hospital, routine management of GIST is as follows: In case of high grade GISTs, postoperative adjuvant imatinib therapy is routinely given for three years, and if there is metastasis or locally unresectable tumor, neoadjuvant imatinib treatment is given for shrinking the primary tumor and curing the systemic disease before the surgery. As the primary and golden treatment of GIST is surgery, surgery is always an option for even metastatic disease.

Results: Of 43 patients, 23 patients had a mitosis rate under 5/50, whereas 5 patients had a mitosis rate between 5/50 – 10/50, and 15 patients had a mitosis rate over 10/50. According to the size of the tumor, 3 patients had a single tumor under 2 cm. All of these three patients had lesions in the preploric area, and got operated with the symptoms of gastric outlet syndrome. 17 patients had a tumor between 2.5 cm, whereas 14 patients had a tumor between 5-10 cm. 9 patients had GIST tumors over 10 cm in diameter. Interestingly, all patients with liver metastasis had liver lesions over 10 cm. One patient with a tumor bigger than 10 cm had an extragastrintestinal stromal tumor, arising from the mesentery. The pathological results of the specimens were as follows: 29 spindle cell histologic subtype, 3 epitheloid cell subtype, and 11 stromal tumor, arising from the mesentery. The pathological results of the specimens were as follows: 29 spindle cell histologic subtype, 3 epitheloid cell subtype, and 11 stromal tumor, arising from the mesentery.

Conclusions: 43 patients have been operated on between January 2017-December 2018. Routine preoperative diagnostic findings and postoperative pathological evaluations are identified and noted. In our hospital, routine management of GIST is as follows: In case of high grade GISTs, postoperative adjuvant imatinib therapy is routinely given for three years, and if there is metastasis or locally unresectable tumor, neoadjuvant imatinib treatment is given for shrinking the primary tumor and curing the systemic disease before the surgery. As the primary and golden treatment of GIST is surgery, surgery is always an option for even metastatic disease.

Detection of potential molecules that might be implicated in colorectal metastasis to lung

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Background: Colorectal cancer usually metastasizes to lung, liver or lymph nodes. The action of markers that might be used as predictors of the metastasis, or might be implicated in metastasis, could be used as potential therapeutic targets, or biomarkers. In this study, we used a model combining the environment of colon cancer cells, and providing signals from normal lung cells, or endothelial cells to identify any potential biomarkers that probably associated with colorectal metastasis to lung. The model uses 3D cell culture techniques to simulate the in vivo system.

Methods: Human colorectal cancer cell lines, HCT-116 and HCT-15, were co-cultured with endothelial cells (HUVEC), or normal lung cells (BEAS-2B), in Matrigel and cells were grown as 3D cultures. RNA isolated from both co-cultures as well as from initial cells, and genes whose expression altered under co-cultivation were selected for further studies. Gene expression was knockdowned with siRNA, and study of markers associated with metastasis followed.

Results: Different expression profile upon co-cultivation with lung cells, but not with endothelial cells, was observed in more than 150 genes. Among them, a few were associated with invasion, motility, epithelial to mesenchymal transition (EMT) - mesenchymal to epithelial transition (MET) and cell adhesion. siRNA experiments in ANGPT1, NEDD9 and FN1 led to a decrease in expression of genes and transcription factors, associated with metastasis and invasion (growth factor receptors, integrins, cytokertatins, etc.).

Conclusions: These preliminary data indicate that the genes ANGPT1, NEDD9 and FN1 might be associated with colorectal metastasis to lung. These genes overexpressed only upon co-cultivation with normal lung cells, but not with endothelial, and their downregulation was associated with downregulation of genes implicated in metastatic pathway. The above markers need to be evaluated also in clinical samples, so to be used as biomarkers or potential drug targets.