Efficient and Safe Application of a FOLFIRI/Bevacizumab Combination to a Patient with Locally Advanced Rectal Cancer and Severe Chronic Renal Failure

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Cytotoxic treatment of patients with advanced or metastatic cancer, undergoing hemodialysis due to chronic renal failure, still remains a problem due to a lack of sufficient pharmacokinetic and pharmacodynamic data on most cytotoxic agents [1]. A number of articles have been published on the safe use of various agents, such as 5-fluorouracil (5-FU), folinic acid (FA), irinotecan (CPT-11) and oxaliplatin, in patients suffering from advanced or metastatic cancer and undergoing hemodialysis due to chronic renal failure [2–5]. However, it is still unclear whether bevacizumab (BEV) – a new agent with an IgG1 structure – can be safely used. After a review of the literature, we have observed that FOLFOX4, FOLFIRI regimens and BEV can be safely and efficiently used in these patients [1–6]. We report the case of a 38-year-old male who suffered from severe chronic renal failure and local irresectable recurrent rectal cancer. The patient was admitted to our hospital with stage II cecal cancer in January 1999. After a hemicolectomy, the patient did not receive any adjuvant therapy. Then, in August 2003, he was diagnosed with stage III rectal cancer (metachronous cancer). After surgical removal of the tumor, postoperative radiotherapy and chemotherapy of intravenous bolus 5-FU/FA was applied (Mayo protocol). Later, in December 2005, a locally recurrent irresectable rectal cancerous lesion and subsequent postrenal azotemia emerged. Due to the postrenal azotemia and bilateral hydronephrosis, bilateral percutaneous nephrostomy were performed. After that, the glomerular filtration rate (GFR) was determined as 28 ml/min. The patient received 2 cycles of standard FOLFOX4 regimen. Due to a grade 3–4 hematological toxicity, the therapy was discontinued after the second cycle. Due to a blockage in both nephrostomies, both catheters had to be replaced. The patient received hemodialysis over a period of 1 month. He was put on a biweekly schedule of dose-reduced CPT-11 (100 mg/m², 180 mg in total) on day 1, standard dose 5-FU (400 mg/m², 720 mg in total as i.v. bolus and 600 mg/m²,

1,080 mg in total, as i.v. infusion for 22 h on days 1 and 2), standard dose FA (200 mg/m², 360 mg in total, as i.v. infusion for 2 h on days 1 and 2) and BEV 5 mg/kg (total 300 mg) on day 1 (FOLFIRI/BEV regimen). With the nephrostomies functioning efficiently, the patient did not require hemodialysis after the first cycle of FOLFIRI/BEV (GFR 25 ml/min). Due to excellent tolerability and a lack of severe side effects, the dose of CPT-11 was increased to biweekly 125 mg/m² (225 mg in total), 150 mg/m² (270 mg in total), and 180 mg/m² (320 mg in total). Hematological and non-hematological (such as proteinuria and hypertension) toxicities grade 3/4 were not observed. A total of 8 cycles FOLFIRI/BEV were applied over 4 months of treatment. The patient achieved regression (partial response) and clinical improvement.

This is the first case report to demonstrate the feasibility and efficacy of a biweekly treatment with a full-dose FOLFIRI/BEV regimen in a patient with metastatic rectal cancer and severe chronic renal failure.

References

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