Dear Sir,

There is no standard palliative treatment of hepatocellular carcinoma. Various modalities have been employed and these include local infarction, regional chemotherapy, systemic chemotherapy and intra-lesional alcohol. We would like to report the use of high-dose chemotherapy consisting of ifosfamide, carboplatin and etoposide (ICE), followed by peripheral blood progenitor cell (PBPC) reinfusion. This treatment has resulted in disease stabilisation.

A 57-year-old woman presented with complaints of a gradually increasing lump in the epigastric region for 6 to 7 months. A CT scan of the abdomen revealed an irregular heterogenous mass in the left lobe suggestive of hepatocellular carcinoma. She underwent a left lobectomy. The histopathology was consistent with hepatocellular carcinoma and cirrhosis of the liver. Six months later, the mass recurred in the left lobe of the liver along with a small focal hypodense area in the right lobe. Serum alphafeto protein had increased progressively from 762 ng/mL to 3477 ng/mL over the last two months (normal limits 0 to 10 ng/mL). She was only seen by us at this stage. On examination, she had normal vital signs with a scar from a previous surgery in the abdomen and a hard mass in the epigastric region, 4 cm below the right coastal margin; the spleen was not palpable. Laboratory investigations showed a haemoglobin of 14.3g/dL, Hct 45.9% WBC was 14.7 x 10^9/L; 66% neutrophils and 29% lymphocytes, platelets were 170 x 10^9/L. Serum chemistries revealed serum creatinine of 0.5 mg/dL, LDH 843 IU/L, uric acid 5.3 mg/dL; Serum total bilirubin 0.7 mg/dL; SGPT 38 IU/L; alkaline phosphatose 112 IU/L. Various treatment options including transarterial chemo-embolisation (TACE) were discussed with the patient and family members. The patient refused TACE and opted for high-dose chemotherapy.

The patient underwent priming chemotherapy with cyclophosphamide 1.5 grams intravenously, followed two days later by granulocyte-monocyte colony stimulating factor (GM-CSF or leucomax supplied by Sandoz Corporation) and granulocyte colony stimulating factor (GCSF or Neupogem supplied by Roche Corporation) for three days each. On the seventh day, the patient underwent a 9 stem-cell apheresis. The CD-34 positive cells were calculated at around 2 million cells per kg of the patient's body weight. This was followed by conditioning with ICE chemotherapy over the next 3 days, consisting of ifosfamide 6 gm/m^2 over 24 hours for 2 days, carboplatin 600 mg/m^2 over 2 hours on days 1 and 2 and etoposide 250 mg/m^2 over 3 hours on days 1 and 2. This was followed by re-infusion of the PBPC product 24 hours after completion of chemotherapy. She developed a fever at this time, requiring ceftazidime, amikacin, and empiric itraconazole for fungal prophylaxis. Her platelet counts fell to 72 x 10^9/L. The TLC decreased to a low of 0.4 x 10^9/L. On the seventh day after conditioning, GM/CSF and GCSF were re-instituted for a total of 10 days, beginning on the next day of infusion of apheresis product. The total duration of neutropenia was 7 days. At the time of discharge, the patient was afebrile, feeling well, and had a WBC of 3.4 x 10^9/L, with 64% neutrophils and 33% lymphocytes. Following her discharge, the alpha-feto protein normalised and the patient was on regular follow-up in the outpatient clinic. She is currently well and alive, in excellent functional status and it has been 20 months since she underwent chemotherapy.

We do not believe that high-dose chemotherapy with stem cell support has been previously reported as a treatment option in hepatocellular carcinoma. We feel that in highly selected cases with preserved liver function tests and non-localised disease, as in this case, high-dose chemotherapy with PBPC can be used as a treatment modality for disease stabilisation purpose.

Yours sincerely,

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