

US-FDA Approved Chemotherapy Drugs in 2014

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Abstract

Cancer is a disease characterized by uncontrolled proliferation of cells. Cancer occurs when the genetic information of the cell *i.e.* DNA is somehow damaged, with that result the cell begins to multiply uncontrollable, irreversible, independent, autonomous, uncoordinated and relatively unlimited and abnormal overgrowth of tissues. The management of any cancer mainly depends on the type and stage of the cancer followed by patients' age, health and economic status. Cancer patients generally require combination therapy and palliative care. There is no single treatment for any type of cancer. Treatments such as surgery, radiation, chemotherapy, hormone therapy and immunotherapy or gene therapy are routinely used. Among them chemotherapy is the universal treatment option which uses drugs to destroy the cancer cells. This paper summarize the recently FDA approved drugs for the treatment of cancer.

Key words: Cancer; US-FDA; Chemotherapy.

Introduction

Cancer is a complex genetic disease which is mainly caused by environmental factors. Cancer is defined as an uncontrolled proliferation, growth and spread of abnormal cells in the body. Cells are the fundamental units of life. Every organism composed of one or more types of cells. The basic physiology is

that, cells divide to produce more number of cells only when body needs them. However, during pathological events, cells continue to divide and thus create more number of cells though body do not require. When this process occur, a mass of tissue are formed, which is called 'tumour' [1]. Since 1940s with the use of nitrogen mustard, the use of chemotherapy for cancer is practiced. Since then, many clinical trials are performed to discover the most efficacious and minimal adverse effect drugs for the treatment in chemotherapy [2]. The present manuscript briefs about the drugs which are recently approved by the Food and Drug Administration (FDA) for sale in the United States.

Nivolumab

It is an emerging and promising drug of choice for the management of cancer patients with metastatic melanoma. The drug is administered intravenously 2mg/kg every 3 weeks [1].

Olaparib

It is preferred in advanced ovarian cancer patients who are either deleterious or suspected deleterious germline BRCA mutated type and have been treated with three or more first-line chemotherapy drugs. In advanced ovarian cancer patients 400mg twice daily oral is the therapeutic dose. If adverse effects are

reported by the patients, the doses can be reduced to half and even further to 100mg BD [2].

Lanreotide

It is indicated for the treatment of advanced or metastatic gastro entero pancreatic neuro- endocrine tumors. It is mainly preferred in patients with either unresectable or moderately differentiated cancer type. 120mg is administered sublingually once in every 4 weeks [3].

Ramucirumab

It is generally used in combination with docetaxel for the treatment of metastatic non-small cell lung cancer, on progression or after platinum-based chemotherapy. It is also used with the combination of paclitaxel for the treatment of patients with advanced gastric or gastro esophageal junction adenocarcinoma or progressive following first-line therapy with platinum or fluoropyrimidine chemotherapy. For advanced gastric cancer or metastatic IV 8mg/kg every 2 weeks as single agent or combination with Paclitaxel and for non-small cell lung cancer IV 10mg/kg on day 1 every 21 days in combination with docetaxel [4, 5]

Ruxolitinib

It is used for the treatment of patients with polycythemia vera who are intolerant or not responded to hydroxyurea. It is to be administered orally with an initial dose of 10 mg twice daily [6].

Blinatumomab

It is indicated used for the treatment of philadelphia chromosome-negative relapsed or refractory B-cell precursor acute lymphoblastic leukemia. During 1st nine days of cycle 1 and 1st two days of cycle 2 hospitalization is advised. It is given intravenously at the dose of e" 45 kg [7].

Bevacizumab

It is generally used as an intravenous infusion in combination with paclitaxel, doxorubicin or

topotecan for the treatment of patients with platinum-resistant, recurrent epithelial ovarian, fallopian tube or primary peritoneal cancer. The recommended dose is 15 mg/kg for every 3 weeks until disease progression or unacceptable toxicity [8].

Pembrolizumab

It is indicated for the treatment of patients with unresectable or metastatic melanoma. 10 mg/kg for every 3 weeks might be an effective dose for treatment [9].

Idelalisib

It is recommended for the treatment of patients with relapsed chronic lymphocytic leukemia. It is generally used in combination with rituximab. The recommended dose is 150 mg orally twice daily (in combination with rituximab) [10].

Belinostat

It is recommended for the treatment of patients with relapsed or refractory peripheral T-cell lymphoma. It is administered at the dose of 1000 mg/m² intravenously daily on days 1 to 5 of a 21-day cycle [11].

Ceritinib

It is mainly preferred in patients who are intolerant to crizotinib with anaplastic lymphoma kinase positive metastatic non-small cell lung cancer. It is administered with 750 mg orally once daily [12].

Siltuximab

It is used in patients with multicentric castlemans disease with human immunodeficiency virus negative and human herpes virus 8 negative. However, siltuximab is not yet studied in patients with multicentric castlemans disease who are HIV positive or HHV-8 positive. It is administered intravenously at a dose of 11 mg/kg over 1 hour every 3 weeks [11].

Ofatumumab

It is given in combination with chlorambucil in chronic lymphocytic leukemia patients who are not

responded with fludarabine-based therapy. It is administered intravenously at 300 mg on day 1 of cycle 1, followed by 1000 mg on day 8 and on subsequent cycles 1000 mg on day 1 on every 28 days [12].

Ibrutinib

It is indicated for the treatment of patients with mantle cell lymphoma who have received at least one prior therapy. It is administered with a dose of 420 mg orally once daily [13].

Trametinib

It is used as a single agent or in combination with dabrafenib for the treatment of patients with unresectable or metastatic melanoma. The dose for combination regimen is 2 mg oral qDay plus dabrafenib 150 mg oral BID [14].

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