Evaluation of Anti-Cancer Oncology Medicines Pharmaceutical Companies Under Chain of Sustainable Procurement

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ABSTRACT

Cancer is awful disease, which makes panicle network in the body system of patients. Cancer is characterized by abnormal and uncontrolled cell growth, which results in the formation of lumps or masses in body known as tumor. There are more than 100 types of cancers and each is classified according to the cell capacity and size. Globally, cancer is accepted as the second leading cause of death. As per a WHO report, cancer is responsible for 8.8 million deaths in 2015. Anti-cancer drugs or oncology medicines are employed in taking the care of different patients. At the present time, many pharmaceutical companies are active in producing oncology medicines. It is probed that by pharmaceutical scientists how cancer treatments under the scheduled time can save life of patients and a delay in treating cancer patients may have unseemly effects on the life of patients. The presented research focuses on two cases. The first was conducted at Jabalpur Hospital & Research Centre (JHRC), where a structure/model related to A-CM3P company is built for assessing the performance under chain of sustainable procurement criteria. The second research focuses on the benchmarking of two A-CM3P companies. A multi objective optimization approach is implemented, accompanied with vague modeling for computing the overall performance index of oncology medicines.

KEYWORDS


1. INTRODUCTION AND STATE OF ARTS

Cancer is usually classified according to the tissue from which the cancerous cells originate. An authoritative diagnosis usually requires the histological examination of a tissue biopsy specimen by a pathologist, the initial indication of malignancy is considered as stage of cancer. Cancer is so serious disease that it can initiate from anywhere in the human body on account of trillions of cells. A cell becomes cancerous due to disruption in the cell DNA, changing the instructional system that supervises the life cycle of cells. Apart from this, many cancerous parameters in relational to everyday life of a person causes the disruption of life cycle of cells, result in the propagation of cancer in human being. The most usual cancerous parameters are genetic predisposition, estrogen exposure, ionizing radiation, ultraviolet B (UVB), carcinogenic chemicals, tobacco, smoking, alcohol, carcinogenic foods, unhealthy diet, antioxidants etc. Globally the most common cancer cases occurring in 2016 were bladder cancers, breast cancers, lung and bronchus cancers, colon, prostate cancers, leukemia, endometrial cancers, and pancreatic cancers, rectum cancers, non-Hodgkin lymphoma, thyroid

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cancers, kidney and renal, pelvic cancers. Recently, the National Cancer Institute (NSI) investigated the causes of USA cancer’s patients of 2010-2012 and found that approximately 39.6% of men and women are diagnosed with cancers during 2010-2012. NSI proposed the cancer’s patient report of 2010, USA, the 15,780 children and adolescents ages from 0 to 20 are diagnosed with cancer, while 1,961 are died. In 2016, NSI estimated 1,686, 211 cases of cancer, are diagnosed in the USA and 595,690 peoples are died. Anticancer drugs or Antineoplastics, are used in order to make the humans body enable to fight against cancer propagations cells.

Anti-cancer drugs are used to obstruct the growth of cancerous cells and enhance the performance of non-cancerous cells. Several anti-cancer drugs depend on the participation and involvement in propagations of cancerous cells. Many anti-cancer drugs associated with category of oncology medicines i.e. afinitor, netupitant and palonosetron hydrochloride, aldara, aldesleukin, alectinib, cabometyx, keytruda, lartruvo, lenvima, opdivo, opdivo, rubraca, sustol, etc., are used to provide the treatment against lung and other cancers Milken and Avalere (2016), Schwartzberg et al. (2016).

It is investigated that many people’s die in each year in cancer treatment hospital due to stoppage, holdup, impediment and delay in providing the treatment against lung and other cancer, happens due to low grade and non-schedule delivery of oncology medicines to cancer treatment hospitals. In USA (2016), NSI estimated 1687 lung cancer patients out of 1,686, 211 and 168 lung cancer patients have died due to late supply of anti-cancer medicines to those hospitals in USA. The authors organized relevant literature review to construct the anti-cancer oncology medicines pharmaceutical companies’ appraisal hierarchical appraisement model and techniques for measuring the performance of anti-cancer oncology medicines vendors pharmaceutical companies (Chandra et al. 2016, Schnipper et al. 2016, National Comprehensive Cancer Network 2016, Milken and Avalere 2016). Most of the medicines purchasers use compound supply chains networks to maintain the stock of several medicines is called as pharmacy supply chain. The pharmacy supply chain of medicine supplier must be assessed in order to meet the medicine stock under schedule time, indirectly provides timely treatment to cancer’s patients and eliminate the cases of death (due to non-availability of medicines on schedule time). The pharmacy supply chain evaluation helps the medicine procurers to select the best Anti-Cancer Oncology Medicine Pharmaceutical Companies. The pharmacy supply chain assists the many retailers and medicine procurer to make right decision. But, many researches are conducted in the field of pharmacy supply chain under objective data consideration Baporikar (2017), Juliani et al. (2017), Ocampo and & Clark (2017), Rahmayanti & Ananda (2017). A few research documents are found in the area of subjective assessment of pharmacy supply chain. To conduct the further research work successfully, the authors decided to conduct literature survey in pharmacy supply chain.

There are a few literature reviews related to sustainable supply chain of Anti-Cancer Oncology Medicine Pharmaceutical Companies: Ross (2004) several highly specific P-gp inhibitors i.e. tariquidar, zosuquidar, and laniquidar are entered early stage in clinical trials in combined with cytotoxic anticancer agents. Claudino et al. (2007) metabolomics is involved for quantitative analyses of metabolites in a cell, tissue, or organism. It could be involved in two strategies i.e. target analysis and metabolite profiling. Serkova et al. (2007) metabolic profiling of a system depicts the net effects of genetic and green influences, dealt with disease state and drug therapy. This profiling assist to reduce the discriminate between the pre-disease, disease, and normal state of cells and tissues. For example, the metabolic phenotype of cancer cells is characterized from high glucose uptake, increased glycolytic activity, low mitochondrial activity, and increased phospholipid turnover. Kim and Maruvada (2008) a metabolic profile indicative of any characteristics is utilized as a surrogate marker of disease. Metabolic profiling can rapidly detect subtle alterations in metabolic pathways and also shifts the homeostasis much prior to phenotypic changes is detected.

Tamosaitiene et al. (2011) offered a du point pyramid-based technique for profitability analysis of construction projects with MCDM techniques, applied for estimating the best contractor. Tan et al. (2012) analyzed the impact of competition green environment on performance, examining the alliance between competitive strategy and performance, and indicating four core generic strategies, applied
Effect of Access to Formal Market Information on Prices Received by Smallholder Farmers in Uganda


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