



INTERNATIONAL JOURNAL OF ADVANCES IN PHARMACY MEDICINE AND BIOALLIED SCIENCES

An International, Multi-Disciplinary, Peer-Reviewed, Open Access, Triannually Published Biomedical Journal
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Adipokines: A link between obesity and cancer

EDITORIAL

Latest research findings show that obesity and excess weight can play an important role in the occurrence and development of various cancers apart from various metabolic and cardiovascular co-morbidities (Gati et al., 2014; National Cancer Policy Forum, 2012; Ansari et al., 2012). It is no surprise that growing rates of obesity are linked to rising cancer prevalence (Riondino, 2014).

Since 1979, numerous epidemiological studies and meta-analyses have constantly demonstrated that an elevated BMI (body mass index) is linked with numerous types of cancer, such as prostate cancer in men, breast cancer in women, and oesophageal adenocarcinoma in both sexes. Obesity comprises of several hormonal changes, viz. increased oestrogens, insulin and insulin-like growth factor kappa B (NF-kappa B) system, in oxidative stress, and in peroxidation are common in obesity. Lastly, hypertension, acid reflux and increased iodine uptake are also considered other modifications that may affect obese individuals to specific types of cancer (Paz-Filho et al., 2011; Riondino et al., 2014; Ansari et al., 2012a).

The indication that adipocyte hypertrophy and excessive adipose tissue accumulation (mainly visceral) can endorse pathogenic adipocyte and adipose tissue-related diseases, has led to originate the concept of "adiposopathy", known as adipocyte and adipose tissue dysfunction that gives to metabolic syndrome. Adipose tissue can, certainly, be observed as a significant and highly active player of the innate immune response, in which cytokine/adipokine secretion is responsible for a paracrine loop between adipocytes and macrophages. Consequently contributing to the systemic chronic low-grade inflammation linked with visceral obesity, which symbolizes a favorable niche for tumor development (Joshi RK, Lee, 2014; Riondino et al., 2014). Obesity is also linked with raised levels of numerous other adipocytokines, viz. interleukin-6 (IL-6) and tumour necrosis factor-alpha (TNF-alpha). These adipocytokines establishes a proinflammatory state leading to DNA damage and angiogenesis, and consequently to the promotion of carcinogenesis and metastasis. These adipocytokines also elevate insulin resistance and produce hyperinsulinaemia, which raises the risk for cancer. In addition, each adipocytokine has additional definite property (Paz-Filho et al., 2011).

It is recommended that when an adult reduced his or her BMI by just 1% (equivalent to a weight loss of about 2 pounds), for an adult of average weight, it would prevent the increase in the number of cancer cases. Which, in fact, cause the prevention of about 100,000 new cases of cancer each year in the years to appear.

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