

focus on the role of autophagy in cancer, it indicates that the potential for autophagy modulation in cancer treatment is promising. Clinical studies involving autophagy modulation in cancers have been designed to evaluate the effect of autophagy inhibition in combination with other conventional therapy. The use of autophagy inhibitors in combination with chemotherapy can suppress tumor growth and trigger cell death in a higher percentage than alone chemotherapy. According to multiple clinical trials, depending on the type of tumor and its stage of development, activation or inactivation of autophagy may contribute differently to tumorigenesis. In this regard, if increased autophagy confers tumor resistance to death-inducing agents, its inhibition will allow an improved response to treatment. There are two types of autophagy inhibitors: the early stage which blocks the formation of auto phagosomes (3-methyladenine-3 MA, wortmannin and LY294002) and late stage inhibitors present in the auto phagosome lysosome fusion and degradation phases (hydroxychloroquine- HCQ). Pharmacologic manipulation of autophagy for cancer prevention and treatment will depend on the ability of doctors to successfully recognize the functional status of autophagy in tumors and on the availability of specific autophagy modulators, [32].

Conclusions

Autophagy levels decrease with age but the activity of Atg gene complexes, through autophagic proteins (Atg), may contribute to improving lifespan by delaying ageing. In principle, the four longevity genes, mTOR, AMPK, PTEN and SIRTUINS, protect the body during periods of cellular stress by activating survival mechanisms.

Prospective Strategy for Cancer Therapy

When these genes are activated, either through diets with fewer calories and a low content of fatty amino acids and carbohydrates, combined with physical exercise, the body becomes healthier and more resistant to disease. The study of preclinical models for the promotion of autophagy, through genetic or pharmacological means, revealed the possibility of destroying malignant tumors cells and triggering apoptosis with the eventual regeneration of cell vitality.

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