

Mitochondria“The el dorado”in cancer?

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The present topic under discussion owes its credibility to the “WARBURGS EFFECT” and the subsequent findings that state the behaviour of the tumor cells towards their process of energy generation when compared with normal cells which usually rely upon the energy releasing pathways viz. GLYCOLYSIS and OXIDATIVE PHOSPHORYLATION. The tumor cells unlike the normal cells up regulate the process of glycolysis even under aerobic conditions to meet their energy demands and there is ample room for an insight into the possible mechanisms responsible for the up regulation of the glycolytic pathway and compromise of the mitochondrial functions. The past decade has also witnessed the role of Mitochondria in APOPTOSIS(Programmed Cell Death) by the intrinsic and extrinsic mechanisms involving the CASPASES. This topic discusses the imbalance between the pro apoptotic and anti-apoptotic proteins viz. Bcl-2 and Bax in tumors and the role of p53, HIF-1(HYPOXIA INDUCIBLE FACTOR-1 that plays a role in up regulating the enzymes pyruvate dehydrogenase and lactate dehydrogenase in tumor cells) in the shift of energy releasing pathway from oxidative phosphorylation to glycolysis and how the shift could affect the outer mitochondrial membrane, that plays a crucial role in triggering apoptosis. Owing to the finding in the past years, thorough insight into the role of Mitochondria in cancers could aid in serving as a source for promising targets that can shift the energy pathway from glycolysis and stimulate the silent or suppressed apoptotic pathways.

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Pharmacovigilance: A way for healthy society

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In a new class of all drugs continuous observation & evaluation is required on the side effects & contraindications, for this a strong pharmacovigilance system is required. Pharmacovigilance is the fastest emerging tool as an important approach for the early detection of unwanted effects of the drugs & to take appropriate regulatory actions if necessary. World health organization(WHO) define “Pharmacovigilance is the science & activities relating to the detection, assessment, understanding and prevention of adverse effects or any other short-term & long-term drug related problems”. Some of drugs which are banned for usage after marketing even though those are potential agents in the treatment of diseases are:

Generic Name	Use	Reason For Ban
Cerivastatin	Anti-hyperlipidemic	Fatal Rhabdomyolysis
Rosiglitazone Maleate	Anti-diabetic	Liver failure, Heart failure
Oxyphenbutazone	NSAIDS	Bone marrow depression

Hence the importance of pharmacovigilance is increasing now a days as it is instrumental in continuously monitoring unwanted effects and other safety aspects of drugs that are already in market and those drugs which are going to marketing. The Uppsala monitoring centre (UMC) in Sweden is an international arm of WHO for monitoring adverse drug reactions (ADR), maintains an international data base of ADR reports submitted by various national centers. INDIA has joined in UMC in 1998 itself but its contribution is very less so there is much more still needs to be done in this field in INDIA. Every health professional should take responsibility for establishing effective pharmacovigilance system in INDIA.

Biography

T. Jayaprakash has completed his B.pharm in Sri Siddhartha Pharmacy College, Nuzvid affiliated to Acharya Nagarjuna University, Guntur. He has qualified in GPAT-2011. Now he is doing his M.paharm with pharmacology specialization in Jawaharlal Nehru technological University, Kakinada. His areas of interest are Regulatory affairs, Research & Development, Pre-clinical studies.

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