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Metformin benefits, exceeded glycemic control

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Metformin is from the biguanide family which founded in 1920. The first clinical trial of its use as a treatment for diabetes was published in 1957. The A1c reduction by~ 1.5%, insulin sensitizer mechanism of action and due to its being a weight neutral agent, all made it a logical first line option in treatment of type 2 diabetes. Subset analysis of the overweight type 2 diabetics in the UKPDS trial has shown that metformin decreased the cardiovascular complications as well as all-cause mortality compare to other comparators. Numerous studies showed that the overall risk of cancers is significantly greater in the diabetic's compared to those without diabetes. Metformin has an anti-proliferative effect through activation of the adenosine monophosphate activated protein kinase. Retrospective studies showed lower risk of certain cancers in diabetics who were treated with metformin, but yet most of the prospective trials failed to document that benefit. Studies showed that patients with diabetes or impaired glucose metabolism have significantly increased thyroid volume and nodule prevalence. Metformin in a small prospective study showed promising effect in decreasing thyroid nodule size in patients with insulin resistance and small thyroid nodule. Recent data demonstrated the inhibitory effect of metformin on incident of goiter in type 2 diabetics. Benefits of metformin extended to thyroid cancer patients, as it showed a smaller tumor size and increasing the likelihood for complete response compare to those weren't treated with metformin. Diabetes and even hyperglycemia have been shown to increase risk of dementia. Recent cohort with 5 years follow up, looked at diabetics who were started on a single agent for treatment of type 2 diabetes revealed that metformin use is associated with decrease risk of developing dementia compare to other comparators. Diabetes also increases the risk of affective disorder, the combination of metformin and sulfonylurea minimizes this risk. Adding metformin to sildenafil in overweight patients with erectile dysfunction and insulin resistance who had poor response to sildenafil resulted in improved erectile function comparable to placebo. In a small report of 3 cases with unexplained hot flashes whom had negative related work up, normal oral glucose tolerance test but with hyperinsulinemia, metformin resulted in improvement of their symptoms with metformin usage. Controversies do exist in some of the above evidence, but the potential benefits with the limited side effects are the reasons behind making metformin first line of treatment.

Biography

Khaled A Alswat, is an Assistant Professor of Medicine at Taif University and a Consultant physician of Endocrinology and Diabetes at King Abdulaziz Specialist Hospital, Tertiary and Referral Center in the Western Region, Saudi Arabia. With outstanding educational and research activities, he received his Post-graduate training in Internal Medicine and Endocrinology from the George Washington University, Washington DC, USA. He is Certified Clinical Densitometrist by the International Society for Clinical Densitometry (ISCD). He is an active member of numerous Endocrine organizations, actively participated in many Endocrine meetings including the Endocrine Society 2011 & 2012 meetings where some of his research was selected to be in the presidential session and amongst the top studies that received special mention in US media coverage.

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