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Weight control interventions in melanoma: Progression and therapeutic outcome in obesity

Obesity, known as a potential risk factor for various cancer types is also associated with poorer therapeutic outcome in cancer patients. Few studies have demonstrated the link between obesity and cancers mechanistically. The impact of obesity and weight control interventions on cancer progression or on the therapeutic response is poorly understood. Using animal models, we observed that controlling obesity either by pharmacological intervention or by dietary restriction significantly diminished the progression of melanoma. Diet-induced obesity worsened the outcome of dacarbazine (DTIC) therapy in melanoma. The impaired response to DTIC and overall survival of mice were significantly improved upon employing weight control interventions in the HFD (obese) mice. Using an appropriate in vitro approach, we observed similar molecular alterations and decline in the cytotoxic effect of DTIC in melanoma cells cultured in conditioned medium (CM) collected from 3T3-L1 adipocytes. Overall, we demonstrate that diet-induced obesity exacerbates the efficacy of DTIC and that weight control interventions retards tumor growth and improves the therapeutic outcome. Therefore, controlling obesity in conjunction with cancer therapy significantly reduces tumor burden, improves the treatment outcome and promotes the survival.

Biography

Manoj Kumar Bhat is Scientist G at National Centre for Cell Science, Pune, India. He is A member of Indian Association for Cancer Research and has been a recipient of many award and grants. His research experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests as a Scientist reflect in his wide range of publications in various national and international journals.

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