Complementary and Alternative Medicine (CAM) as a chemopreventive strategy in skin cancer

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Introduction: Non-melanoma skin cancer (NMSC) outnumbers all other cancers combined. The annual cost of treating skin cancers in the US is estimated at $8.1 billion. This severe economic burden, in addition to the significant morbidity and mortality that has engendered movement towards creative strategies for chemoprevention, including incorporation of complementary and alternative medicine (CAM). Complementary and alternative medicine (CAM) is loosely defined as any healing practice “that does not fall within the realm of conventional medicine” [1]. A 2010 report cited that 78% of respondents felt that physicians should incorporate CAM into their treatment plans [2,3]. Additionally, many of the drugs developed to treat cancer are not suitable for chemoprevention due to their side effect profile. Natural products may provide sustainable alternatives. Methods: A comprehensive PubMed search was performed according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was performed between the years 1984-2017. Results: The search yielded a total of 409 manuscripts spanning a wide variety of phytochemicals. Predominantly among them were curcumin, (-)-epigallocatechin-3-gallate (EGCG), flavonoids, and resveratrol. More than 1,600 manuscripts evaluated the occurrence of 175 skin cancers. Analysis of patients with acute GVHD demonstrated that the incidence of cutaneous malignancy remains unclear. We have performed a comprehensive meta-analysis to ascertain the association between acute GVHD to cutaneous malignancy. Incidence of secondary skin cancers and descriptions of risk factors have been widely reported on within the hemopoietic stem cell transplantation (HCT) patient population. Studies have demonstrated inconsistent associations between acute and chronic graft versus host disease (GVHD) to cutaneous malignancy remains unclear. We have performed a comprehensive meta-analysis to ascertain the association between acute and chronic GVHD, and secondary skin cancer incidence. MEDLINE and the Cochrane Database of Systematic Reviews were searched for eligible studies that reported on incidence of GVHD in both the total population of HCT recipients, and in the secondary skin cancer patients only. In total, 1,952 records were screened, and 1,411 original studies were reviewed for eligibility. Study quality was assessed with Down's and Black checklist. Seven studies were deemed eligible, providing a cohort of 54,133 HCT patients with a total occurrence of 175 skin cancers. Analysis of patients with acute GVHD demonstrated that they were not more likely to develop squamous cell carcinoma (SCC) (p=0.6), basal cell carcinoma (BCC) (p=0.5), patients who progressed to chronic GVHD, however, demonstrated significant association with incidence of SCC and BCC. SCC was the most common secondary malignancy (RR 5.31, 95%CI 2.39-11.81, p < 0.001) followed by BCC (RR 1.95, 95%CI 1.29-2.93, p=0.002). The heightened risk of SCC and BCC, in pooled chronic GVHD, demonstrated a high-risk population. A multidisciplinary approach between dermatology, hemovive, and primary care is crucial in ensuring these patients undergo regular skin cancer screening exams, even years post-transplant.

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