

Blood Type and Allergy-Assisted Cancer Immunotherapy

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Abstract

Blood type plays a role in immunity to allergens. Allergy-assisted cancer immunotherapy uses the body's natural immune system to inhibit solid tumor development and progression. Can the association between blood type and allergies be utilized to suppress malignant solid tumors? This review examines how blood type influences the allergy cascade to improve outcomes for cancer patients.

Keywords: Allergies; Blood Type; Cancer Immunotherapy; Forced Atopy; Solid Tumors

1. Introduction

Cancer resistance is a benefit of the allergy cascade; research reveals a positive association between atopy (allergies) and solid tumors [1,2,3,4]. Unfortunately, solid tumors have evolved mechanisms to evade immune responses, such as signaling the immune system that they are protected healthy cells. [5,6] Inhibiting "cold" solid tumors [7], combining immunotherapies may enhance the positive association between forced atopy and cancer resistance [8]. There is a need to explore the interplay between blood type and allergies. This review discusses eight common blood types and allergen sensitivity to improve cancer patient outcomes.

2. Description

A quarter of U.S. adults and children have one or more allergies. [9] Studies have found an inverse association between allergies and certain cancers, meaning that individuals with allergies may have a lower risk of developing cancer [10,11,12].

Prolonged and repeated skin exposure to allergens triggers an allergy cascade. Topical hyper-allergenic compositions (United States Patent 11,911,463) containing allergens and immunologic adjuvants induce forced atopy.

Blood type may influence immune receptiveness to specific allergies. There are eight main blood types, based on the presence or absence of two antigens (A and B) on the surface of red blood cells and the Rh factor [13]. A summary of blood type prevalence, allergy receptiveness, and cancer resistance is reviewed.

2.1. Blood Type A positive (A+)

Forced atopy to pollen may benefit (A+) patients with gastrointestinal cancer and pancreatic cancer.

(A+) is about 34% of the U.S. population [14].

(A+) has increased receptiveness to pollen allergies [15].

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(A+) increases the risk of gastrointestinal and pancreatic cancer [16].

Pollen allergies are associated with reduced risk for gastrointestinal cancer [17] and pancreatic cancer [18].

2.2. Blood Type A negative (A-)

Forced atopy to food allergens may benefit (A-) patients with gastrointestinal cancer.

(A-) is relatively rare; about 6% of the U.S. population [19].

(A-) has increased receptiveness to food allergies, including eggs, dairy, nuts and beans, and gluten grains [20].

(A-) increases the risk of gastrointestinal cancer [21]. Gastrointestinal cancer occurs when healthy cells in the digestive system grow abnormally and form tumors. These tumors can develop in many parts of the digestive system, including the esophagus, stomach, pancreas, small intestine, large intestine, rectum, and anus [22].

Food allergies are associated with reduced risk for gastrointestinal cancer [23].

2.3. Blood Type B positive (B+)

Forced atopy to select pollen and food allergens may benefit (B+) patients with ovarian cancer.

(B+) is about 9% of the U.S. population [24].

(B+) has increased receptiveness to pollen [25] and food allergies [26].

(B+) increases the risk of ovarian cancer [27].

Pollen and food allergies are associated with reduced risk for ovarian cancer [28].

2.4. Blood Type B negative (B-)

Forced atopy to pollen or mold may benefit (B-) patients with throat cancer.

(B-) is about 2% of the U.S. population [29].

(B-) has increased receptiveness to pollen and mold allergies [30].

(B-) increases the risk of throat cancer [31].

Pollen and mold allergy are associated with a reduced risk of throat cancer [32,33].

2.5. Blood Type AB positive (AB+)

Forced atopy to food allergens may benefit (AB+) patients with gastric, liver, and pancreatic cancer.

(AB+) is about 3% of the U.S. population [34].

(AB+) has increased receptiveness to food allergens, including gluten grains, dairy products, nuts, beans, seafood, and eggs [35].

(AB+) increases the risk of pancreatic, liver, and gastric cancer [36].

Food allergies are associated with a reduced risk of gastric, liver, and pancreatic cancer [37,38,39].

2.6. Blood Type AB negative (AB-)

Forced atopy to food allergens may benefit (AB-) patients with gastric, liver, and pancreatic cancer.

(AB-) is about 1% of the U.S. population [40].

(AB-) has increased receptiveness to food allergens, including beans, dairy products, gluten grains, eggs, nuts, and seafood [41].

(AB-) increases the risk of gastric, liver, and pancreatic cancer [42].

Food allergies are associated with reduced risk of gastric, liver, and pancreatic cancer [43,44,45].

2.7. Blood Type O positive (O+)

Allergic rhinitis may benefit (O+) women with nasopharyngeal carcinoma:

(O+) is about 38% of the U.S. population; [46]

(O+) has increased receptiveness to allergens associated with rhinitis/asthma, including pollen (from trees, grasses, and weeds), dust mites, animal dander, and mold spores; [47]

(O+) increases the risk of nasopharyngeal carcinoma; [48] and

Forced allergic rhinitis may benefit (O+) women with nasopharyngeal carcinoma. [49]

2.8. Blood Type O negative (O-)

Allergic rhinitis may benefit (O-) patients with urothelial bladder cancer.

(O-) is about 7% of the U.S. population [50].

(O-) has increased receptiveness to the allergens associated with rhinitis [51].

(O-) increases the risk of urothelial bladder cancer [52],

Forced allergic rhinitis may benefit (O-) patients with urothelial bladder cancer [53].

3. Conclusion

Allergy-assisted cancer immunotherapy is in its infancy; blood type is a biomarker that directs immune modulation (i.e., forced atopy) against malignant solid tumors. Most interesting, future research involves mixtures of compatible blood types and their effect on allergy-assisted cancer immunotherapy.

Compliance with ethical standards

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No conflict of interest to be disclosed.

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