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Successful treatment of intractable chronic spontaneous urticaria with omalizumab in a patient with ovarian cancer

Omalizumab, a neutralizing anti-IgE antibody, is widely used for severe urticaria. However, its efficacy and safety in cancer patients with urticaria is still unknown. Here, we report a patient with ovarian cancer and intractable chronic spontaneous urticaria (CSU) which was successfully treated with omalizumab.

A 49-year-old Japanese woman presented to our department with a 10-month history of repeated wheals and itching. She had a history of CSU since some years. Ovarian cancer (Stage IIIc: pT3cN0M0, serous adenocarcinoma) was diagnosed 17 months before and treated by bilateral oophorectomy and subsequent chemotherapy. Her urticarial symptoms started during treatment with paclitaxel, carboplatin and bevacizumab, and she was diagnosed with recurrent CSU. At presentation, Urticaria Control Test (UCT) score was 5; seven-day Urticaria Activity Score (UAS7) was 28. She showed positive reaction to autologous serum skin test (ASST) performed with approval from the Ethics Committee (RK-15908-12). Her serum IgE level was 6 IU/mL. Oral administration of levocetirizine initially achieved good control of CSU, but the symptoms gradually worsened thereafter. Increased dose of levocetirizine plus montelukast did not improve her condition. Other antihistamines also failed to relieve CSU (UCT sore: 6, UAS7: 38). Because antihistamines could not ameliorate her symptoms, omalizumab therapy (300 mg/4-5 weeks) was initiated. At the second administration (Week 4), UCT score improved to 10 and UAS7 to 12. Further, UCT score increased to 16 and UAS7 decreased to 0 at Week 12, achieving remission of CSU (*figure 1*). Serum IgE level remained at 6 IU/mL. Recurrence of ovarian cancer was found after the fourth administration of omalizumab (Week 12), and chemotherapy with paclitaxel and carboplatin followed by olaparib was introduced, which led to complete remission. Recurrence of ovarian cancer was diagnosed three months later and the tumour progressed despite further treatment with paclitaxel plus carboplatin followed by gemcitabine. After palliative radiation therapy, she chose to receive merely supportive care. Urticaria was in remission during this course. Thus, treatment interval of omalizumab was changed to eight weeks after the tenth administration (Week 36). The treatment was terminated three months before the patient was transferred to a palliative care hospital. Omalizumab was administered in total 18 times over 27 months. At the time of the most recent follow-up visit, she was free of urticaria and was only taking oral bilastine.

As CSU is thought to affect around 1% of the total population [1], it is presumed that many cancer patients may have associated CSU. Recent reports indicate that CSU can also be caused by cancer and may resolve when the cancer is cured [2, 3].

Quality of life (QOL) is one of the major concerns of cancer patients under treatment. Both the disease and treatment may detrimentally affect QOL [4]. Because QOL of CSU patients is also known to be impaired [5], cancer patients with intractable CSU may become highly distressed. Kaplan *et al*. [6]. have shown that omalizumab significantly improves QOL of CSU patients who remained symptomatic despite standard treatment with H1-antihistamines plus H2-antihistamines, leukotriene receptor antagonists, or both [6].

ASST was positive in our patient, which indicated the possibility that autoimmune mechanisms were involved in the pathophysiology of urticaria. We have previously shown that ASST-positive urticarial patients are more likely to respond to cyclosporine therapy [7] and that CSU with a positive ASST and low IgE levels ($\leq$88.5 IU/mL) respond well to cyclosporine [7]. In this respect, our patient was eligible for treatment with cyclosporine, but this option was rejected because of the underlying ovarian cancer. Considering that immunosuppressive drugs such as cyclosporine should not be used in patients with malignancy, even with positive ASST and low serum IgE, omalizumab could be a treatment option for cancer-bearing patients with CSU resistant to standard therapy [8].

To date, there have been no reports on the use of omalizumab in cancer-bearing patients. Recurrence of ovarian cancer was observed during omalizumab treatment in our patient, possibly due to the advanced stage of the disease at initial diagnosis. On the other hand, recent laboratory studies suggested some role of IgE in anti-cancer immune responses [9, 10] Therefore, although the *in vivo* role of IgE in human cancer patients remains to be elucidated, omalizumab should be used after due consideration in tumour-bearing patients with urticaria.

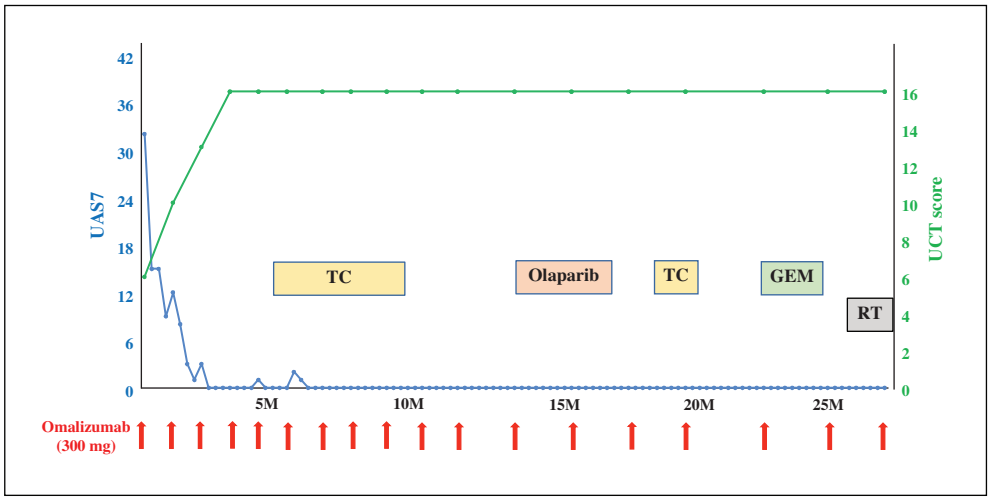

Figure 1. Clinical course of the patient. The green line represents the time course of UCT score. The blue line shows changes in UAS7 over time. The red arrows indicate administration of omalizumab (300 mg). Treatments for ovarian cancer are depicted in the rectangular boxes. TC: paclitaxel plus carboplatin; GEM: gemcitabine; RT: radiation therapy.

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A survey of psoriasis patients on biologics during COVID-19: a high-epidemic area experience – Franche Comté, France

With the emergence of the novel coronavirus disease (COVID-19) pandemic, there is uncertainty whether biologic agents for psoriasis may place patients at a higher