

Successful Use of Photodynamic Therapy for Treatment of Palbociclib-Induced Periorificial Dermatitis

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Introduction

Palbociclib is an oral small molecule inhibitor of cyclin-dependent kinases (CDK4 and CDK6), involved in cell cycle transition through their binding to cyclin-D[1]. These molecules have become pharmacological targets, as their alterations have been found in several malignancies[1]. In particular, palbociclib is indicated for the treatment of locally advanced or metastatic hormone receptor (HR)-positive and human epidermal growth factor receptor (HER) 2-negative breast cancer in combination with an aromatase inhibitor[1]. Hematological toxicity, with leukopenia and anemia, is the most frequently reported adverse effects (AEs)[1]. Cutaneous AEs are also common, in particular itching, alopecia, and eczematous rash[1]. The presence of skin toxicity during cancer therapy can cause discontinuation of therapy, with severe impact on quality of life and treatment success[2]. We present a case of palbociclib-induced periorificial dermatitis (POD) successfully treated with photodynamic therapy (PDT).

Case Presentation

A 50-year-old breast cancer patient with lung metastases in treatment with palbociclib and letrozole came to our attention for diffuse papules and rare pustules around the mouth, the nose, and the orbits, on an erythematous background (Figure 1), with itching and burning and a significant negative impact on quality of life. On palpation the patient reported pain and severe burning. The diagnosis of POD was confirmed by a 3-mm-diameter punch skin biopsy. Oral doxycycline and topical antibiotics were started, but no improvement was observed. Therefore, the treatment was switched to PDT with topical methyl 5-aminolevulinic acid (MAL) once a month at 37 J/cm². We observed a meaningful reduction in the number of papules and in the extent of the erythematous area from the first session, with almost complete clearance at the third session (Figure 2). No AEs occurred, and no recurrence was reported during the following three monthly visits.



Figure 1. First visit of the patient. The patient in treatment with palbociclib presents diffuse papules and rare pustules around the mouth, the nose, and the orbits, on an erythematous background.



Figure 2. Visit after three MAL-PDT sessions: A considerable reduction in the number of papules and in the extension of the erythematous area from the first session.

Discussion

POD is an erythematous papulopustular rash of the skin around the mouth, nose, and orbits[3]. The most common symptoms are itching and burning[3]. Due to the similar distribution of manifestations, POD must be differentiated from acne vulgaris, rosacea, and lupus disseminates faciei[3].

First-line therapy includes topical antibiotics such as metronidazole, erythromycin, or clindamycin, used for their anti-inflammatory properties[3]. Other local treatments include calcineurin inhibitors[3]. In more severe cases, oral tetracyclines or isotretinoin are indicated[3].

In their study on skin AEs during palbociclib therapy, Amigo et al. described the appearance of POD in a 65-year-old patient after 10 months of therapy, successfully treated with topical metronidazole [4]. Another treatment option is PDT. Richey and Hopson treated 21 patients with POD on half the face with topical clindamycin and the other half with PDT. Among the 14 patients who completed the study, an average clearance of 92% on the half-face treated with PDT was observed, compared to 81% of the half treated with topical clindamycin ($P=0.0227$)[5].

Since conventional therapies had failed on our patient, MAL-PDT was initiated, with the excellent results described above.

Conclusion

We have reported this case because the palbociclib-induced POD was successfully treated with PDT, a therapy that has no systemic AEs, which is ideal for cancer patients and allows them to continue their cancer therapy.

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