Spironolactone for the Treatment of Acne: A 4-Year Retrospective Study

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Keywords

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Abstract

Prior studies have demonstrated that spironolactone is an effective second-line treatment option for postadolescent acne, but has notable side effects. Data are, however, limited. We therefore present a 4-year retrospective study evaluating 291.5 patient-years of spironolactone for the treatment of acne. Our results showed that 86% of patients improved on spironolactone therapy. Further, patients who improved showed minimal side effects, supporting recent evidence that spironolactone is a safe option for acne treatment with a low risk of short-term adverse effects such as hyperkalemia. It is suggested that our study encourages consideration of spironolactone for postadolescent acne.

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Introduction

Acne affects more than 50 million Americans annually [1], and the proportion of postadolescents with acne has increased over the last decade. Postadolescent acne

primarily affects females and is resistant to conventional treatment in 79–82% of cases [2]. Spironolactone is used as a second-line treatment in this population, with use primarily limited due to its side-effect profile [3]. In this 4-year retrospective study at a large academic center, we aim to characterize the efficacy and tolerability of spironolactone for the treatment of acne.

Materials and Methods

For further details, see the online supplementary materials (see www.karger.com/doi/10.1159/000471799 for all online suppl. material) [4, 5] (Fig. 1–3; Tables 1, 2).

Discussion

Our findings regarding the efficacy and safety of combination therapy are consistent with those described in smaller studies [2, 4, 6–8]. The vast majority of our patients improved on spironolactone, despite many previously failing other acne treatments. Furthermore, relatively low doses were needed compared to those used for hirsutism and androgenetic alopecia [4].

Fig. 1. Flowchart of Materials and Methods: cohort selection. In total, 1,566 patients were identified in our query of patients who were on spironolactone between July 17, 2012, and February 16, 2016. Of these patients, only 400 patients had never used spironolactone previously and had at least 1 note with an acne status (improved, worsened, unchanged, indeterminate) detailed in the note.

Fig. 2. Treatment response based on treatment regimen. Treatment response of 400 patients on different treatment regimens including spironolactone only, spironolactone plus oral treatment, spironolactone plus topical treatment, and spironolactone, oral treatment, and topical treatment. The *x*-axis shows the acne status posttreatment. The graph illustrates that the majority of patients were in the “improved” category, and the treatment regimen most commonly used for “improved” outcomes was combination therapy: oral therapy, topical therapy, and spironolactone.

Table 1 and Figure 2 demonstrate that spironolactone is efficacious when used in combination with other agents – combining agents with different mechanisms of action in the treatment of acne is recommended by the American Academy of Dermatology [7, 9]. Table 2 demonstrates that side effects were uncommon and less frequent than previously reported, particularly headaches and menstrual irregularities [2, 4]. Interestingly, while studies reported that 17.5–18% of patients on 50–100 mg of spironolactone experienced menstrual irregularities [2, 4], only 1 patient (0.25%) experienced these in our study. This may have been partially due to a larger per-

centage of patients in our study on hormonal therapy (34.5 vs. 12%) [4]. The frequency of xerosis in our study is consistent with that in other studies [4]. Furthermore, all patients who experienced xerosis were applying tretinoin, which can also cause xerosis [6]. The infrequent side effect of hyperkalemia, with the majority being mild, is consistent with that reported by Plovianich et al. [3]. In our short-term study, there were no patients who developed estrogen-dependent cancers, consistent with previous data published by Biggar et al. [10].

There are several limitations to this study. The major limitations are the approach, the short follow-up time for

Fig. 3. Comparing treatment outcome for those previously treated for acne vs. those who were initially started on spironolactone. Of the 253 patients who had been previously treated for acne, after starting spironolactone 220 (86.96%) improved, 17 (6.72%) were unchanged, and 12 (4.74%) worsened. The remaining 147 (36.75%) patients were untreated prior to initiating spironolactone. Of these, 137 (93.2%) improved, 3 (2.04%) had an indeterminate status, 7 (4.76%) were unchanged, and 0 worsened.

Table 1. Treatment regimen and response to treatment

	n	%
<i>Spironolactone + topical + oral</i>		
Improved	189	88
Indeterminate	3	1
Unchanged	14	7
Worsened	8	4
Total	214	
<i>Spironolactone + oral</i>		
Improved	25	81
Indeterminate	2	6
Unchanged	3	10
Worsened	1	3
Total	31	
<i>Spironolactone only</i>		
Improved	35	85
Indeterminate	0	0
Unchanged	5	12
Worsened	1	2
Total	41	
<i>Spironolactone + topical</i>		
Improved	108	95
Indeterminate	2	2
Unchanged	2	2
Worsened	2	2
Total	114	

Of the total of 400 patients involved, 214 (53.5%) used a combination of spironolactone, topical agent(s), and an oral treatment; 31 (7.75%) used spironolactone with other oral treatment(s); 114 (28.5%) used spironolactone with topical treatment(s); and 41 (10.25%) used spironolactone monotherapy.

Table 2. Side effects

Estrogen-dependent cancers	0
Breast tenderness	1
Abdominal fullness	1
Back pain	1
Heavy menstrual cycles	1
Feeling “sick”	1
Severe headaches	1
Facial/perioral xerosis, erythema, irritation, and pruritus	4
Hyperkalemia	6

many patients, and the choice of outcomes. While the physician’s routine clinical assessment of acne severity reflects the practical real-world results, it is, nevertheless, physician dependent. This study describes our experience of using spironolactone in the management of acne. The data suggest that it is a useful drug, and the results further support that spironolactone is a safe medication with tolerable side effects. It may be speculated that an increased use of spironolactone may decrease our dependence on oral antibiotics in acne management, which is paramount in this age of antibiotic stewardship [9].

Key Message

Spironolactone is a safe medication for postadolescent female acne.

Statement of Ethics

The study protocol was approved by the University of Cincinnati Institutional Review Board.

Disclosure Statement

The authors of this paper have no conflicts of interest to disclose.

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