

Table 6 Adverse effects

Adverse effects	Group 1	Group 2
Telangiectasia	1	5
Skin atrophy	1	3
Skin ulceration	4	2
Systemic adverse effects	0	0



Figure 1 Skin ulcers were more in TAC+5-FU

DISCUSSION

Keloid is an abnormal fibrous tissue outgrowth that extends beyond the borders of the wound. They are a cause of cosmetic and physical and psychological embarrassment to the patient. Intra-lesional TAC acts by decreasing fibroblast proliferation, increasing collagen disintegration, and suppressing inflammation. 5-FU is an antimetabolite that interferes with ribonucleic acid synthesis, and inhibits fibroblast proliferation [3].

As a combination TAC has been added to 5FU in the ratio of 1:9. This dose reduces the side effects of 5FU by its anti-inflammatory nature, consequently, it is hypothesized that the benefits of faster responses of 5FU can be obtained with the combination. The combination regimen has been proven to be better than TAC alone.

A recent meta-analysis by Ren et al concluded that TAC+5FU is safer and more effective than TAC alone. Kontochristopolus G found that 50% improvement with combination therapy of TAC+5FU. Berman B et al, in their study, found significant improvement with combination therapy [4-7].

We have attempted standardization, and comparison using an acceptable scar assessment scale. A lower rate of adverse effects was seen with combination, with no systemic side effects. The limitation was a short follow-up [8]. A combination of TAC+5FU offered balanced benefits of faster and more effective response and fewer adverse effects.

CONCLUSION

A combination of TAC+5FU offered balanced benefits of faster and more effective response and fewer adverse effects. The response in treatment was excellent who had keloids of less than two-year duration, and small size. Combination of TAC+5FU has added an advantage over TAC alone.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

- [1] Fitzpatrick, Richard E. "Treatment of inflamed hypertrophic scars using intralesional 5-FU." *Dermatologic Surgery*, Vol. 25, No. 3, 1999, pp. 224-32.
- [2] Ketchum, Lynx D., David W. Robinson, and Frank W. Masters. "Follow-up on treatment of hypertrophic scars and keloids with triamcinolone." *Plastic and Reconstructive Surgery*, Vol. 48, No. 3, 1971, pp. 256-59.
- [3] Xi-Qiao, Wang, et al. "A review of the effectiveness of antimetabolic drug injections for hypertrophic scars and keloids." *Annals of plastic surgery*, Vol. 63, No. 6, 2009, pp. 688-92.
- [4] Andrews, Jonathan P., et al. "Keloids: The paradigm of skin fibrosis-Pathomechanisms and treatment." *Matrix Biology*, Vol. 51, 2016, pp. 37-46.
- [5] Shah, Vidhi V., et al. "5-fluorouracil in the treatment of keloids and hypertrophic scars: a comprehensive review of the literature." *Dermatology and therapy*, Vol. 6, No. 2, 2016, pp. 169-83.
- [6] Kontochristopoulos, George, et al. "Intralesional 5-fluorouracil in the treatment of keloids: an open clinical and histopathologic study." *Journal of the American Academy of Dermatology*, Vol. 52, No. 3, 2005, pp. 474-79.
- [7] Khalid, Farrukh A., et al. "Comparison of efficacy and safety of intralesional triamcinolone and combination of triamcinolone with 5-fluorouracil in the treatment of keloids and hypertrophic scars: Randomised control trial." *Burns*, Vol. 45, No. 1, 2019, pp. 69-75.
- [8] Darougheh, A., A. Asilian, and F. Shariati. "Intralesional triamcinolone alone or in combination with 5-fluorouracil for the treatment of keloid and hypertrophic scars." *Clinical and Experimental Dermatology: Clinical dermatology*, Vol. 34, No. 2, 2009, pp. 219-23.
- [9] Ren, YiMing, et al. "Efficacy and safety of triamcinolone acetonide alone and in combination with 5-fluorouracil for treating hypertrophic scars and keloids: a systematic review and meta-analysis." *International wound journal*, Vol. 14, No. 3, 2017, pp. 480-87.

- [10] Khan, Muhammad A., Muhammad M. Bashir, and Farid A. Khan. "Intralesional triamcinolone alone and in combination with 5-fluorouracil for the treatment of keloid and hypertrophic scars." *Journal of Pakistan Medical Association*, Vol. 64, No. 9, 2014, pp. 1003-07.
- [11] Huang, Lin, et al. "A study of the combination of triamcinolone and 5-fluorouracil in modulating keloid fibroblasts in vitro." *Journal of Plastic, Reconstructive & Aesthetic Surgery*, Vol. 66, No. 9, 2013, pp. e251-e59.