Clinical effects of pulsed dye laser dynamically combined with triamcinolone acetonide in the treatment of keloids

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Objective To explore the clinical effects of pulsed dye laser (PDL) dynamically combined with triamcinolone acetonide (TAC) in the treatment of keloids.

Methods A retrospectively observational study was conducted. From April 2015 to October 2020, 34 keloid patients (46 keloids) who met the inclusion criteria were admitted to the First Affiliated Hospital of Xinxiang Medical University. The patients were divided into TAC group and dynamic treatment group according to their treatment methods. There were 18 patients (26 keloids) in TAC group, including 8 males and 10 females, aged (30±12) years, who were treated with TAC injection alone. There were 16 patients (20 keloids) in dynamic treatment group, including 6 males and 10 females, aged (26±11) years, who were treated with TAC injection, PDL, or PDL combined with TAC injection according to the Vancouver scar scale (VSS) score before each treatment. Before the first treatment (hereinafter referred to as before treatment) and 12 months after the first treatment (hereinafter referred to as after treatment), the keloids were assessed by VSS, patient and observer scar assessment scale (POSAS), and the effect of keloids on the quality of life of patients was evaluated with dermatology life quality

index (DLQI) scale. Twelve months after treatment, the curative effect of keloid was evaluated according to the VSS score and the effective rate was calculated. The first effective time and the cumulative times of TAC injection at the first effective time, the number of follow-up and the occurrence of adverse reactions of keloids within 12 months after treatment were recorded, and the incidence of adverse reactions was calculated. Data were statistically analyzed with paired sample t test, independent sample t test, Wilcoxon rank-sum test, Mann-Whitney U test, chi-square test, and Fisher's exact probability test.

Results The total VSS scores of patients' keloids in TAC group and dynamic treatment group 12 months after treatment were significantly lower than those before treatment (with t values of 7.53 and 8.09, respectively,

The total VSS scores of patients' keloids in TAC group and dynamic treatment group 12 months after treatment were significantly lower than those before treatment (with t values of 7.53 and 8.09, respectively, $P < 0.01$), and the DLQI scale score were significantly lower than those before treatment (with Z values of -3.71, -4.04, -4.21, -4.11, -3.76, -3.73, -3.92, -3.93, respectively, $P<0.01$). The total scores of pigmentation and vascularity in VSS and POSAS of patients' keloids in dynamic treatment group 12 months after treatment were significantly lower than those in TAC group (with Z values of -2.03 and -2.12, respectively, $P<0.05$). Twelve months after treatment, the effective rate of patients' keloids in dynamic treatment group was significantly higher than that in TAC group ($\chi2 =3.88$, $P<0.05$). The first effective time of patients' keloids in dynamic treatment group was 5.5 (2.0, 6.0) months, which was significantly shorter than 6.0 (2.3, 10.3) months in TAC group ($\chi2 =4.02$, $P<0.05$). The cumulative times of TAC injection at the first effective time of patients' keloids in dynamic treatment group was 3.2±1.7, which was significantly less than 4.2±1.8 in TAC group ($t=2.09$, $P<0.05$). The number of follow-up of patients' keloids within 12 months after treatment in dynamic treatment group was significantly more than that in TAC group ($t=-2.94$, $P<0.01$), and the total incidence of adverse reactions was lower

than that in TAC group but without statistically significant difference (P>0.05).

Conclusions Compared with TAC injection alone, PDL dynamically combined with TAC in the treatment of keloid can shorten the effective time, reduce the number of TAC injection, and improve the patient's compliance and clinical efficacy.

【Key words】 Keloid; Triamcinolone acetonide; Combined modality therapy; Pulsed dye laser