Intralesional Corticosteroid Administration in the Treatment of Keloids A Scoping Review on Injection Methods

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Running Title
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Word Count - 483 Words

BACKGROUND
Intralesional corticosteroid administration is a first-line treatment for keloids, but its clinical results are still highly variable and often suboptimal. Clinical results may strongly be influenced by clinicians' preferences such as the used type, concentration and volume of the corticosteroid, the needle and syringe size, the interval and number of sessions, the level and angle of injection, and the endpoint of infiltration. The aim of the study is to map the details of intralesional corticosteroid administration in keloids and the treatment results described in randomized controlled trials, hence presenting the scientific practice of a pivotal treatment for keloids in the best available evidence.

MATERİALS AND METHODS
The scoping review was developed in accordance to the methodological framework devised by the Joanna Briggs Institute. A systematic search was performed on PubMed, Ovid MEDLINE, Ovid EMBASE and CENTRAL for articles from inception to 17 January 2022. Two reviewers performed the title and abstract screening, assessed the full-texts on eligibility, and extracted the relevant data on intralesional corticosteroid administration, treatment results and study design. Quantitative data were summarized by narrative synthesis.

RESULTS
Thirty-eight studies were included for data extraction. The effective dose, calculated by multiplying concentration with volume, could only be compared among ten (26%) studies, and varied from 1 mg to 20 mg triamcinolone acetonide (TAC) per cm^2. Local anesthetics, such as lidocaine in various concentrations and lidocaine and prilocaine 25/25 mg/g cream, were used in eleven (29%) studies. Lidocaine could be mixed with TAC and was injected simultaneously and/or before corticosteroid administration. Needle sizes were reported in eleven (29%) studies and varied from 26 to 30-gauge. The syringe size was specified in four (11%) studies, being 1 mL. Four weeks was used most commonly (50%) as treatment interval, but intervals varied from weekly to monthly. The total number of treatment sessions varied from one to eight, with the median being four sessions. The angle of injection was described in three studies, varying from 'parallel to the skin' to 'at 45-degree angle against the skin'. The injection level was described using various terms in eleven (29%) studies. Blanching as endpoint of infiltration was reported in ten (26%) studies. Different outcome measures were used, varying from keloid sizes (34%) reported as height, surface area or volume, to Vancouver Scar Scale (29%), Patient and Observer Scar Assessment Scale (20%), pain and itch scores, patients satisfaction and various self-defined efficacy rates. The follow-up period varied from 1 month to 1 year. Only six (17%) studies had a follow-up of ≥6 months. Recurrence was identified in two studies

with a follow-up period of 18 weeks and 1 year. Twenty-five (66%) studies reported adverse events.

CONCLUSİON

There is insufficient reporting and substantial heterogeneity in all aspects of intralesional corticosteroid administration and study design among RCTs. This scoping review underscores the urgent need for standardization of treatment protocol and study design to enhance and uniform research conduct among keloid studies.