INPLASY PROTOCOL

To cite: Tartaro et al. Polyacrylamide injection vs polylactic acid in HIV related lipodystrophy: a RCT systematic review. Inplasy protocol 202180014. doi: 10.37766/inplasy2021.8.0014

Received: 04 August 2021

Published: 04 August 2021

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Support: **None.**

Review Stage at time of this submission: **Completed but not published.**

Conflicts of interest:
None declared.

Polyacrylamide injection vs polylactic acid in HIV related lipodystrophy: a RCT systematic review

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Review question / Objective: **The aim of this systematic review of randomized controlled trials was to investigate the efficacy and safety of polyacrylamide gel injections compared to polylactic acid injection in restoring facial wasting. (P) is the polyacrylamide gel (I) effective in lipodystrophy correction (O) compared to polylactic acid found in literature (C)?**
Eligibility criteria: **English written randomized controlled trials, describing patients with facial lipoatrophy HIV-related treatment. The participants and control group received either polyacrylamide gel or polylactic acid. The studies included had to report a follow up of at least 24 weeks, and at least one efficacy outcome. Articles were excluded when not reporting any of the efficacy outcome.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 August 2021 and was last updated on 04 August 2021 (registration number INPLASY202180014).

INTRODUCTION

Review question / Objective: **The aim of this systematic review of randomized controlled trials was to investigate the efficacy and safety of polyacrylamide gel injections compared to polylactic acid injection in restoring facial wasting. (P) is the polyacrylamide gel (I) effective in lipodystrophy correction (O) compared to polylactic acid found in literature (C)?**

Condition being studied: Lipodystrophy is an alteration of fat metabolism that commonly affects HIV-1 positive patients treated with antiretroviral therapy (ART). Thanks to ART, the HIV patients' survival rate and quality of life increased, although new chronic complication and morphological changes such as lipodystrophy arose. Lipodystrophy is as a combination of facial fat atrophy associated or not with peripheral lipoatrophy (leg arm and buttocks), intra-abdominal fat accumulation and a lipid redistribution: alterations of body-fat composition has in fact been reported in 40–50% of all ambulatory HIV-positive patients. The main risk factor of this condition is the use of thymidine analogues inhibitors of the reverse transcriptase, such as estavudine (D4T) or zidovudine (AZT). The facial area is most commonly affected by peripheral lipoatrophy, thus becoming a social stigma related to chronic HIV (a.k.a. facial wasting). Psychological consequences may be significant in many patients leading to reduced self-esteem, problems in social and sexual relations, anxiety and depression, and as a result leading to a reduction in antiretroviral therapy adherence. Several treatments have been proposed such as modification of diet, lifestyle and both surgical and nonsurgical procedures. If the clinical condition is characterized by facial lipoatrophy and body lipohypertrophy, structural fat grafting may be a feasible option, since it is possible to restore the face volume and reshape the body at the same time. On the other hand, if the clinical condition is mainly characterized by facial lipoatrophy other options are available such as the use of permanent, semipermanent or absorbable fillers.

METHODS

Search strategy: The keywords were used and combined with Boolean operators, adapted for every database, both as text words and Medical Search Headings (MeSH terms) as follows: (polyacrylamide OR PAM OR PAGE OR polyacrylamide gel OR polyacrylamide hydrogel OR polyacrylamide hydro-gel OR polyacrylamide hydro gel) AND (human immunodeficiency virus OR HIV OR lipodystrophy).

Participant or population: HIV-1 positive patients (314).

Intervention: Polyacrylamide and polylactic filler.

Comparator: Polyacrylamide and polylactic filler.

Study designs to be included: Randomised controlled trials.

Eligibility criteria: English written randomized controlled trials, describing patients with facial lipoatrophy HIV-related treatment. The participants and control group received either polyacrylamide gel or polylactic acid. The studies included had to report a follow up of at least 24 weeks, and at least one efficacy outcome. Articles were excluded when not reporting any of the efficacy outcome.

Information sources: The research was carried out up to April 7, 2021 on electronic databases PubMed/MEDLINE, Embase, and Cochrane. Article language was limited to English using the provided filters.

Main outcome(s): Due to high risk of bias studies, it is hard to evaluate the efficacy of a specific treatment, however article analysis and comparison suggested some effective insights. MRI and CT might be used to have an objective evaluation of the tissue after the treatment and eventually valuate complications. Ultrasound evaluation is a cost-effective procedure to assess volume augmentation. Patient reported outcome with standard test should be used. We believe is essential to draft a pre- and post-injection and operative protocol to define an even setting for the clinical condition. Is desirable if such specifications are included in a large randomized controlled trial and the follow up is longer than the studies that we found, because as we have seen in literature are reported adverse events even 3 or 5 years after the injections.

Quality assessment / Risk of bias analysis: Two independent reviewers (G.L.G., L.P.) performed quality assessments of the included studies, in cases of results discrepancies, a third senior reviewer (R.R.) was consulted. RoB 2 tool was used to assess randomized studies [29]. Three levels (Low, High Some Concerns) were used to present the risk of bias Robvis visualization tool web app was used to create "traffic light" plots of the domain-level judgements for each individual result and weighted bar plots of the distribution of risk-of-bias judgements within each bias.

Strategy of data synthesis: The following data from each study were extracted: Author's name, publication year, country, ClinicalTrials.gov identifier/NCT number; enrolment criteria, type of dermal filler used, adverse effects related to the procedure, efficiency measures.

Subgroup analysis: The primary outcome of Lafaurie's study was to demonstrate the non-inferiority of Polyacrilamide vs Polylactic acid using a visual analogue scale (VAS) at week 48. In Narciso's study the primary objective was to compare the change from baseline to the end of filling intervention for the immediate group or before the filling intervention for the delayed group in terms of the severity grade of the FLA assessed by physicians. Secondary outcomes were to evaluate patients's QoL and anxiety.

Language: English.

Country(ies) involved: Italy.

Keywords: HIV facial lipoatrophy; HIV lipodistrophy; facial volume loss; filler agent; highly active antiretroviral therapy; quality of life; polyacrylamide gel.

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