

Evaluation of superficial sensation loss after lip enhancement using dermal fillers

Zainab Ali Al-Najjar^{1*}, Zanyar M. Amin²

^{1,2}college Of Dentistry/ University Of Sulaimani/Iraq

Email: Zainalnajjar2@Gmail.Com

Abstract

Objective: Enhancement by using filler have become the material of choice for soft-tissue augmentation. Cosmetic procedures using fillers are easier, longer lasting, less immunogenic and can be broken down by hyaluronidase. However, early and delayed complications, ranging from minor to severe, can occur following filler injection. Main common complications are those that occurs earlier after injections, main goal is to discover the relation of the lip fillers with the loss of superficial sensation of lips after fillers as its translated into numbness and tenderness sensations. as an evaluation for these types of complications a survey had been designed in questionnaire form to evaluate (200) patients that had went through lip filler injections. Review of early onset of both tenderness and numbness is inserted in ranged pain scale type to evaluate the specific symptom the patient had, the lasting of the symptoms and the outcomes.

Method: One specific module consisting of several questions regarding the specific site of filler injection, dose of dermal filler injections and the patient's symptoms will be obtained to understand the consequences of the filler injections and their relationship with the patient's sensation at site of injection, by a part of a preliminary review of n (20) patients. The review will be conducted by collecting answers from patients who had went through dermal fillers.

Result: A total of 200 women participated in this survey from all over Iraq. Among them higher graduated from college (92.5). Their age mostly was in range of (30-39).

Conclusion: In this paper we tried to investigate whether the amount of filler injected and the possibility of patient being participations were from Sulaymaniyah (37.0). Level of education were higher for those who diagnosed with any disease shortly after the procedure will increase the probability of complications of such procedure or not.

Keywords: Complication. Lip fillers, Sensation, Symptoms.

INTRODUCTION

The use of dermal fillers has been introduced to cosmetic surgery. The highly satisfaction of the patient and the simplicity of reaching the desired appearance by simple injection of filler has led to certain acceptance towards these treatments (1). Many materials of fillers had been introduced, but the most biocompatible was Hyaluronic acid (HA) fillers. It has become the material of choice for use in esthetic soft tissue and dermal augmentations and corrections. It has many facilities as it lasts longer, less allergic, and can be dissolved by hyaluronidase (1).

Improving skin quality when skin ages, filling wrinkles and folds as it is the best purpose of filler, and volumizing the size of facial pads has been approached by fillers (2). All injections of lips could be estimated by needles or cannulas depends on specific indications, material of the filler being used and the deep of the wrinkles regarding age of the patient (3).

Address for correspondence: Zainab Ali Al-Najjar, college Of Dentistry/ University Of Sulaimani/Iraq, Email: Zainalnajjar2@Gmail.Com

Received date: 11 August 2022

Accepted: 14 September, 2022

Published: 07 October, 2022

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How to cite this article: Al-Najjar A Z, Amin M Z, Evaluation of superficial sensation loss after lip enhancement using dermal fillers ., J Pharm Negative Results 2022;13(4):243-248.

Access this article online

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10.47750/pnr.2022.13.04.029

The dermis is the most sensitive organ of the body. Despite the biocompatibility of filler substance, it may cause different reactions, and the severity of the reactions depends on the depth of injection as it could be bearable as mild allergy. when injected sub-dermally or more chronic inflammation, as foreign-body granuloma when injected intradermally. Yet, because the wrinkles develop in the dermis, they must be treated in the dermal layer or close to it(4). Injection's familiarity and caution is a serious key to prevent any serious complication, since possible inflammation, granulomas, or nodules last longer than usual and may be bothersome for years. All possible complications mentioned above can be considered as none as dramatic or serious as accidental intravascular injection, that leads to partial or complete vascular compromise resulting from filler injection into the arterial system. This complication may result in either local and/or distant ischemic necrosis (5). The most severe and dangerous early-occurring complication is tissue necrosis, possibly regarding the interruption of the vascular supply to the area by direct injury to the vasculature, compression of vasculature or direct obstruction of the vessel by the HA filler secondary to its hydrophilic action. To prevent these disastrous complications, a familiarity with potentially dangerous injection zones and facial anatomy must be obtained. We suggest two such dangerous zones susceptible to tissue necrosis: the glabella and nasal ala (6). The aim is to obtain an answer by using this simple questionnaire to evaluate the duration, severity, and the outcome of the symptoms after lip injections regarding the numbness and tenderness weather its completely resolved or not.

Patients and methods

A cross sectional survey was conducted. The survey population were female adults in Iraq. Data collection has been estimated in online form from different criteria of patients who had went through lip fillers between October 2021 till April 2022 selection of patient's inclusion criteria of healthy patients' age range (20-55) old. Who were capable to understand and respond to the questions of the designed questionnaire, systemically healthy. Exclusion criteria were medically compromised patients. Participants have been explored to different questions regarding their recent lip fillers and early complication that occurred after their injections. Patients who participated the survey had answered questions regarding their experiences with the filler injections and weather they had any allergic reaction while or after injections. Despite that the inclusion criteria selected only systemically healthy patient, patients who had been Newley diagnosed with any diseases within the injections year of time that may affect the nerve sensations had been listed through the selection criteria to specify the exact results of their superficial sensation after fillers. questionnaire is designed in a form of (15) questions in all English, Arabic and Arabic languages to obtain larger samples, all forms had been translated scientifically by a language specialist and the form was given to the participants to answer the questions, this cross-sectional study was approved by the ethics committee of college of dentistry / university of Sulaymaniyah. Filler injections of

lips was the gold standard of this survey and the symptoms after injections were divided into numbness and tenderness in mild. moderate and severe scales. The severity of symptoms is depended on time at injection (weather in weeks. Months or years). Site of injections in upper lower of both lips and also the pain severity of the injection at that time both will reveal the severity of symptoms and weather it completely revealed or still present.

RESULTS

Participation's characteristics

A total of 200 women participated in this survey from all over Iraq. Among them higher participations were from Sulaymaniyah (37.0). Level of education were higher for those who graduated from college (92.5). Their age mostly was in range of (30-39).

The findings of the independent variables more than half of the survey participant's (178) had allergy as shown in Tble(2). The most (74.5) were healthy with no certain systemic diseases. More than three fourths (90.5) had visited the clinic for lip fillers in range of (1-2) times a year. The different in severity and the symptoms effect on patients after lip filler injections, as most of the participants had felt pain more frequent than not experiencing any pain. Type of the pain has different effect on patients as Numbness was more frequent by (144) time in mild form than tenderness which was mildly more frequent by (117) time. As shown in table (3).

Duration of symptoms mostly lasted for hours by (124) and mostly was not affected by any type of symptoms by (99).The most frequent anatomical areas of lip filler injections as it was mostly more frequent in both lips by (158) and mostly happened recorded in duration between 6-1 year) after injections. As in Table (4).

Highly non-significant correlation between lip filler injections and all different symptoms individually as well as outcome of the symptoms which proves that all the symptoms are more related to the injection's method rather than the filler material itself. As shown in Table (5).

DISCUSSION

Lip enhancement using filler injection is a very common procedure currently, easiness of the procedure and its safety contribute to its wide spread among patients, hyaluronic acid is the most common type of filler material used due to its high safety profile (7), however, there is no procedure without any adverse events, but most studies report mild to moderate side effects that don't last long(8).

Adverse events happen after the use of lip fillers due to many causes, classified into three categories: patient, product, or technique related(9), in this research we tried to explore two of these causes, the amount of filler used as product related, and newly diagnosis of disease during the year of injection aspatient related, and see if there is any relation between these two factors and the occurrence and severity of the side effects, as this will help practitioner in this field to gain better insights

about the unfavorable outcomes of filler injection and how to avoid or reduce these outcomes. In addition, we focused on two symptoms which are numbness and tenderness, in an attempt to diagnose more serious outcome which is loss of superficial sensation at the site on injection.

After analysis of the results, we can see that these symptoms are quite common among patients underwent filler injection procedure, but the majority were within the mild to moderate grade of severity and 62% of the patients their symptoms last for few hours only after the procedure, and 90.5% of them reported completely resolved symptoms. And these results are consistent with most of the studies that investigate the safety of lip filler injections (8).

However, the result couldn't support our theory about the relation of the frequency and severity of the symptoms and the product related factor under study, which is the amount of filler injected, there was no significant statistical association between numbness and tenderness experienced by the patients, neither in the severity grade or the duration with the amount of filler injected (in cc), furthermore, the relation between the amount of filler injected with outcome of the symptoms, whether it resolved or not was not statistically significant also, so, the correlation between adverse event and the product related factor explored is not supported.

The other factor explored in this study was a patient related factor, we asked the patient if they were newly diagnosed by diabetes mellitus, hypertension, autoimmune disease, or other disease within a year after they underwent the procedure, we selected these diseases because they are known to affect the sensory function of the patient by their own. We found that 94% of patients that had not been diagnosed with any disease experience complete resolution of their symptoms within a maximum period of days,

compared to only 40% from those who were diagnosed with an autoimmune disease, 50% for diabetes mellitus and 36% for other disease.

Although the number of patients who were diagnosed with diabetes mellitus or autoimmune disease was little, but the association between resolution of symptoms and the new diagnosis was highly significant, with a p-value of less than 0.001.

This result highlights the critical significance of thorough evaluation of the medical history of the patients intend to undergo such procedure. Despite the easiness and safety of lip filler injection procedure, still there is a risk of some complication that may happened to the patients, and an accurate and careful history taking from the patients can highly reduce this risk.

This paper has two theoretical implications, first, the need to investigate the association of other factors that are either technique or product related with the frequency and severity of adverse events. Second, the significant association between non-resolved adverse events and other diseases need to be further analyzed with a larger sample size and more detailed information about the disease diagnosed and the duration between the procedure and diagnosis to further support the result of this paper.

On the other hand, the practical implications this paper has to practitioner in this field, is the importance of full medical evaluation for patients before any interventional procedure including lip enhancement and avoid depending on general look of the patient and superficial history to reduce the probability of complications that may occur later to the patients.

RESULTS AND DISCUSSION

Table 1: Residency, level of education & Age group distribution

		<i>Frequency</i>	<i>Percent</i>
Residency	Sulaymaniyah	74	37.0
	Erbil	50	25.0
	Baghdad	44	22.0
	Basra	7	3.5
	Najaf	7	3.5
	Karbala	5	2.5
	Thi qar	4	2.0
	Hillah	4	2.0
	Anbar	3	1.5
	Kirkuk	2	1.0
	College	185	92.5
Level of education	Secondary school	13	6.5
	Primary School	2	1.0
	(20-29) Years	82	41.0
Age Group	(30-39)Years	84	42.0
	(40 Years or above)	34	17.0
	Total	200	100.0

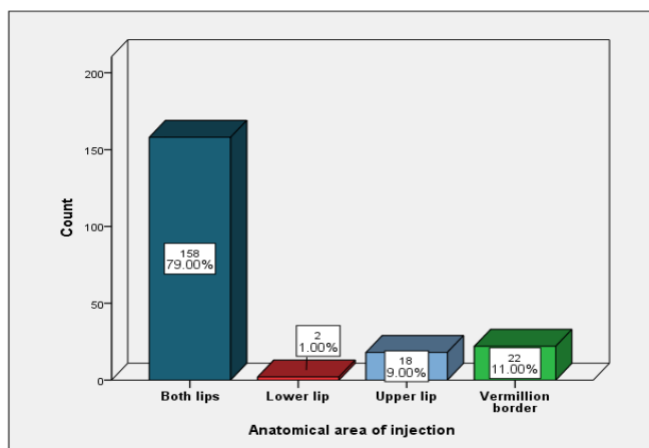


Fig.1: shows the incidence of the most injections is more in which anatomical areas

Table 2: Allergy, Systemic diseases and clinical visit per year among participants

		<i>Frequency</i>	<i>Percent</i>
Allergy	no	178	89.0
	yes	22	11.0
Newly diagnosis	Autoimmune disease	5	2.5
	Diabetes Millitous	6	3.0
	Non Other	149	74.5
Number of clinical visits per year	(1-2)	40	20.0
	(3-5)	181	90.5
Total		200	100.0

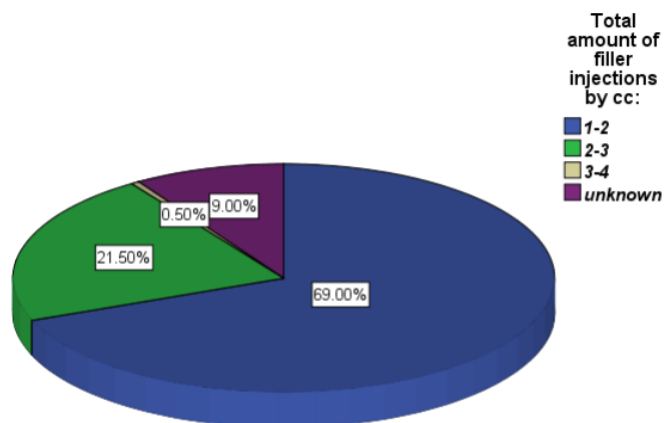


Fig.2: The percentage of filler injections by (cc)

Table 3: Pain severity, Numbness, Tenderness, duration of symptoms and symptom's effects among participants

		<i>Frequency</i>	<i>Percent</i>
Pain severity	Mild	146	73.0
	Moderate	43	21.5
	Sever	11	5.5
Numbness	Mild	144	72.0
	Moderate	50	25.0
	Severe	6	3.0
Tenderness	Mild	117	58.5
	Moderate	76	38.0
Duration of symptoms	Severe	7	3.5
	Hours	124	62.0
Symptoms Affect	Days	76	38.0
	Daily activity	48	24.0
Symptoms Affect	Eating	48	24.0
	Talking	5	2.5
	None	99	49.5
Total		200	100.0

Table 4: Amount of injected filler, Anatomical area of injection and time passed from injection among participants

		<i>Frequency</i>	<i>Percent</i>
Total amount of filler injections by cc:	(1-2)	138	69.0
	(3-4)	44	22.0
	Unknown	18	9.0
Anatomical area of injection	Both lips	158	79.0
	Lower lip	2	1.0
	Upper lip	18	9.0
	Vermillion border	22	11.0
	(Less than 6 Month)	55	27.5
Time passed from injection	(6 Month- one Year)	86	43.0
	(More than one year)	59	29.5
Total		200	100.0

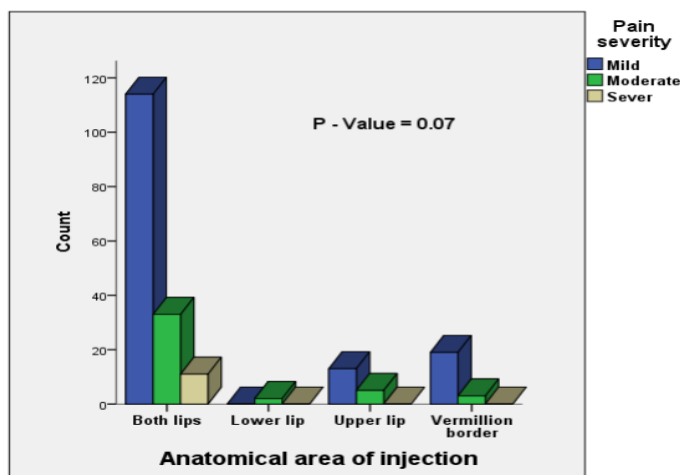


Fig.3:shows the percentage of pain severity is more in which type of injections.

Table 5: Association between Presence of Chronic diseases and the outcome of the symptoms

			<i>Outcome of the symptoms</i>				<i>P-Value</i>
			<i>Completely resolved</i>	<i>Non-Resolved</i>	<i>Partially Resolved</i>	<i>Total</i>	
Newly diagnosis	Autoimmune disease	no	2	1	2	5	< 0.001 *
		%	40.0%	20.0%	40.0%	100.0%	
	Diabetes Mellitous	no	3	2	1	6	
		%	50.0%	33.3%	16.7%	100.0%	
	Non other	no	140	2	7	149	
		%	94.0%	1.3%	4.7%	100.0%	
Total	no	36	0	4	40		
	%	90.0%	0.0%	10.0%	100.0%		
		no	181	5	14	200	
		%	90.5%	2.5%	7.0%	100.0%	

CONCLUSION

Although the safety of lip enhancement procedure is widely proved, still there are some complications that may occur to patient, in this paper we tried to investigate whether the amount of filler injected and the possibility of patient being diagnosed with any disease shortly after the procedure will increase the probability of complications of such procedure or not.

Our data didn't support the role of filler amount as a risk factor for later complications, while the highest percent of patients whose symptoms didn't resolve within few days and continue until the time of study were those patients who had been diagnosed with a systematic disease after the procedures. And according to the findings of this paper we recommend a full medical evaluation to be requested by the doctor or the health care professional from all the patients before starting any interventional procedure.

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