Fundus Fluorescein Angiography (FFA) most common complication compare with Diet or without Diet

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Abstract

Abstract: Purpose: Fundus fluorescein angiography (FFA) is usually done when the patient is on an empty stomach. In case, if the patient is not, their FFA is rescheduled for the next day to avoid the risk of complications. The purpose of this study was to compare the complications in patients who had undergone an FFA procedure on an empty stomach to those who had breakfast immediately before the procedure. Methods: In this study, 210 participants underwent FFA, of which 104 were fasting, and 106 had breakfast just before their procedure. In these two populations, we compare the immediate and post-procedure complications. Result: Patients who had FFA on an empty stomach were more likely to experience nausea and vomiting (11.32% vs 7.69%), skin allergies (1.89% vs 1.92%), and unconsciousness (0.94% vs 2.88%). In either the fasting or control groups, no complications were statistically significant (P>0.05). Conclusion: FFA is generally a safe procedure, however, previous studies have observed increased adverse events with people on empty stomachs. In individuals with various systemic disorders and diets, our study found no increase in adverse effects. Consequently, FFA shouldn't be postponed in these individuals who are not on a diet or who have systemic co-morbidities.

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Introduction

Fundus fluorescein angiography (FFA) is a commonly utilized imaging technology in ophthalmology to provide more details of the health of the back of the eye [1]. Its shows dynamic effects caused by delayed vascular

filling in various regions and blood vessel leaks due to inflammation or increased intracranial pressure in addition to allowing the detection of vascular anomalies [2]. Sodium fluorescein (C20H10O5Na2), an organic dye with a molecular weight of 376 Daltons is used for the procedure [3]. Most cases where this procedure is recommended are those with retinal disorders including diabetic retinopathy, hypertensive retinopathy, and central serous retinopathy. Although the fact that multiple negative effects have been shown in research, these are categorized as mild (nausea and vomiting), moderate (skin allergy), and severe (bronchospasm, laryngeal edema, other skin eruptions, urticaria, other skin rashes, syncope, thrombophlebitis, pyrexia, local tissue necrosis, and unintentional arterial injection) [4]. Previous studies indicated that moderate adverse effects are the most common (0.73–14%), with nausea and vomiting being the most frequent. Moderate and severe reactions are infrequent (1%) [5]. The proposed mechanisms are often classified into one of the following groups: 1) Anaphylactoid reaction: production of histamine in the absence of immune response 2) Immediate immune (IgE-mediated) anaphylactic responses hypersensitive reaction, and 3) bradycardia and arterial hypotension as a result of vagal reactions. 3) bodily or mental stress, 4) a vasospastic reaction to a direct harmful pharmaceutical impact the impact of drug contamination, 5) tachycardia and cardiac stress brought on by anxiety-related medullary sympathetic discharge, 6) and systemic effects as well [6]. In this study, we compare the most common complication of fluorescein fundus angiography in patients who were fasting to those who hadn't before the procedure.

Materials and Methods

The Ethics Committee of Biratnagar Eye Hospital Institutional Review Committee approved this Cross-sectional comparative study. This study adhered to the declaration of Helsinki.

A Cross-sectional comparative study was undertaken of patients who had undergone FFA at Biratnagar Eye Hospital. First, the patient attended the department on the date of his or her investigation as an outpatient and was managed according to a set protocol. Informed consent was obtained when the test was first ordered by an Ophthalmologist. A nurse and an optometrist used an established questionnaire to collect a medical history when the patient arrived. Age, gender, previous medical history, allergies, and the number of FFA investigations were among the details provided. Additionally, the patient's blood pressure and pulse were checked 20 minutes before and after the procedure. Following that, topical tropicamide 1% and phenylephrine 2.5% were used to dilate the patient's pupils. After peripheral upper limb vein cannulation for intravenous access, 3 ml of 20% fluorescein was administered as a quick (4-6 second) bolus. After the procedure was completed, the patient stayed in the area for an additional hour, and any adverse effects were noted along with when they first occurred. All asymptomatic patients who had breakfast prior to the FFA procedure were compared to those who had not.

statistical analysis

SPPS version 25.0 was used for data analysis.

The P-Value was determined using the chi-square test and Fisher's exact text association was used. It was considered statistically significant if P values were <0.05.

Results:

Obtained data on 210 patients, (Age range 20 - [?]71 years). There were 29.52 % females and 70.48 % males in the population.

The total adverse reaction rate (AR) included nausea and vomiting (11.32%) without diet and with diet (7.69%), skin allergy (1.89%) without diet and with diet (1.92%), and unconsciousness (0.94%) without diet and with diet (2.88%). There were no fatalities or significant cardiovascular issues. Three people needed medical attention for respiratory issues (Table 1, Figure 1).

Adverse Reaction	**Adverse Reaction**	**Treatment Group**	**Treatment Group**	**P value**
		Without Diet	**Diet**	

Adverse Reaction	Adverse Reaction	Treatment Group	Treatment Group	P value
		n (%)	n (%)	
Nausea and vomiting	No	94 (88.68)	96 (92.31)	0.255*
	Yes	12 (11.32)	8 (7.69)	
Skin allergy	No	104 (98.11)	102 (98.08)	0.682#
	Yes	2 (1.89)	2 (1.92)	
Unconsciousness	No	105 (99.06)	101 (97.12)	0.304#
	Yes	1 (0.94)	(2.88)	

Hence, diet intake and adverse reactions have no association or correlation (P value > 0.05).

Table 1: Association of Diet intake and without intake adverse reaction.

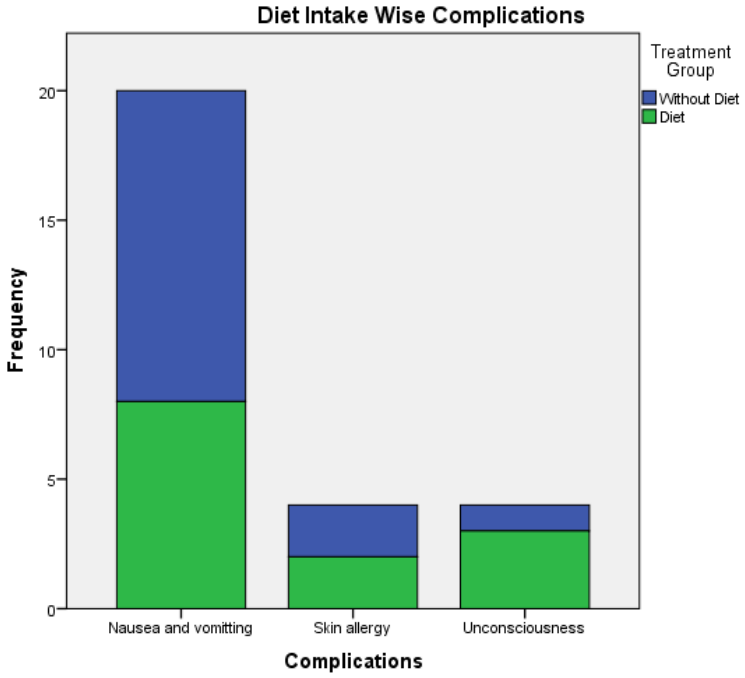

Fig. 1. The frequency of adverse reactions (vomiting and nausea, skin allergies, and unconsciousness) is shown in Figure 1.

There was no statistically significant difference in the adverse events between those who fasted vs those who didn't before the procedure (P>0.05).

Discussion:

Intravenous fluorescein angiography is increasingly being used to diagnose different retinal conditions [7]. The overall complication rate for the fasting group was 12.49% compared to 14.15% in the non-fasting group. it is to be noted that the difference in the complication is due to the difference in mild complication in these two populations while the moderate and severe complication in these two populations is not clinically significant. According to Oliver R. Marmoy, Robert H. Henderson, and Kuan Ooi, a patient who has had only a light breakfast without lunch before the oral FFA procedure is more effective and safer [8].

Also, when we compare the complication rate in patient with systemic disease (diabetics, hypertension) the mild, moderate, and severe complication is 8.49%, 0.94%, and nil respectively in the population(n=73) who had breakfast immediately before the procedure while the population (n=59) who has undergone FFA in the empty stomach has the mild, moderate and severe complication of 3.92%, 0.98%, 0.98% respectively. Here also the mild complication rate is higher in patients who had breakfast before the procedure, while the moderate to severe complication rate is clinically insignificant. Fayyaz Musa,1 Wisam J. Muen found no Adverse effects of fluorescein angiography in hypertensive and elderly patients, [9]

Since the mild complication in these two populations has nausea and vomiting only and is temporary, it is safe to perform FFA in patients who had a light breakfast before the procedure. Also, a history of any systemic disease which is under control with medications has comparable adverse effects in these two populations.

Conclusions:

We conclude that FFA is a relatively safe procedure that yields important diagnostic information which might ultimately have a positive impact on the patient's quality of life. FFA should not be postponed on the basis of whether the patient was empty stomach or not. Systemic illness as these factors, not adverse reactions in FFA procedures both groups had complication rate are same which is not clinically significant in this study.

Conflicts of interest:

The authors have no conflict of interest.

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