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PREVALENCE OF ADVERSE REACTIONS TO CONTRAST AGENTS USED IN RADIOLOGY – A INSTITUTIONAL STUDY

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ABSTRACT

The past few years has seen as rise in the incidence of imaging modalities that are used especially the intravenous contrast agents Although the currently available contrast agents generally are considered to be safe, their use is not completely without risk. Adverse effects vary from minor physiologic and mild allergic-like reactions to rare but severe and life-threatening events. Although the prevalence of these reactions is low for both CT and MR imaging reactions to contrast media do occur, and rapid evaluation and treatment of them requires designated and well-trained personnel and appropriate, readily available equipment and medications. In view of this we did a prospective study to evaluate the incidence of contrast allergies at J.J.M. Medical College Davangere.

INTRODUCTION

As the number of CT scanners increases, the number of diagnostic CT imaging studies increases as well as their side effects, including iatrogenic cancer and adverse events from iodine-containing contrast agents.[1,2]

Although contrast media are relatively well tolerated, a non-life-threatening, moderate reaction requiring some treatment occurs in 1 to 2% of patients receiving ionic high-osmolar contrast media and in 0.2 to 0.4% of patients receiving non-ionic low-osmolar contrast media. Severe, life-threatening reactions can be expected in about 0.2% of patients after injection of ionic high-osmolar and 0.04% after non-ionic low-osmolar contrast media.[3-7]

Prompt recognition and treatment are invaluable in blunting an adverse response of a patient to radiographic contrast material, and may prevent a reaction from becoming severe or even

life-threatening. Some reactions can be prevented by pretreatment before administration of contrast media.[3,6,7]

In spite of this there are very few studies done on this topic. In view of this we did a prospective study to evaluate the incidence of contrast allergies at J.J.M. Medical College Davangere.

MATERIALS

The study was a prospective case study the data of which was obtained from 600 patients who met the predefined inclusion and exclusion criteria who visited the department of Radiodiagnosis of J.J.M. Medical College between the time period from period of May 2018 to August September 2021 who had any one of these were considered not eligible to participate if they had no history of allergies, immunocompromised states or were taking any form medications, aged from 18 to 60 years. A those who were eligible for the study and consented for the study were chosen They are evaluated using a structured semi filled proforma.

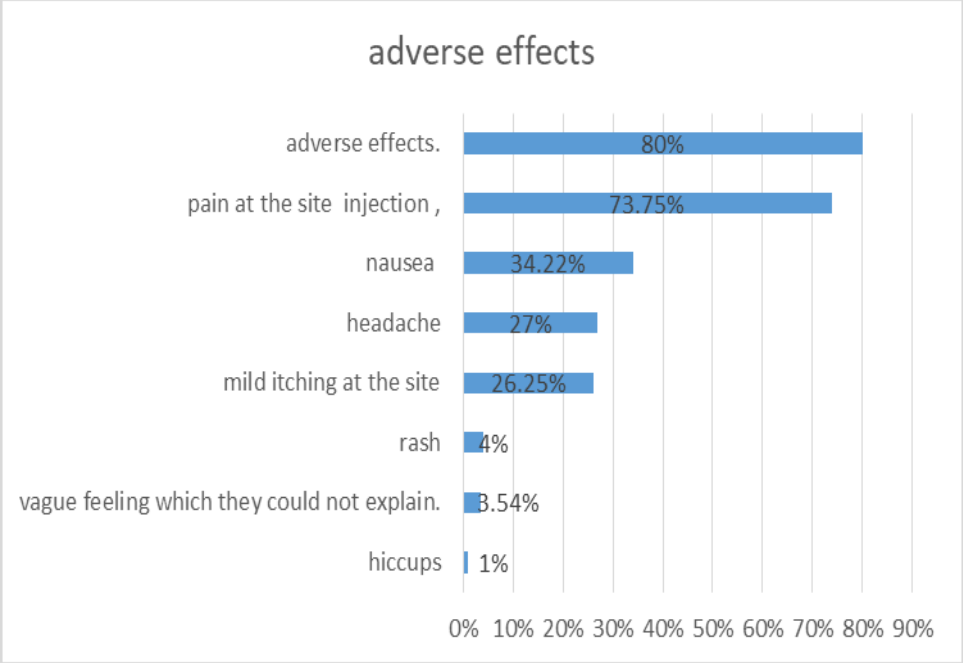
RESULTS

In the present study we evaluated 339 patients the most common age group was between 45-50 years 55.75%, In our study 4 % noted rash, 27% had headache, 1% had hiccups, 89 cases 26.25% had mild itching at the site, 116 cases 34.22% had nausea 73.75% reported pain at the site injection, 12 cases 3.54%, had a vague feeling which they could not explain.no serious adverse effects were noted. None of the patients needed ant particular intervention. 292 cases 80 % had some or the other adverse effects. We realized that unless specifically asked for the do not mention them. Of the 80% only 15.41% of them mentioned them. The reason on questioning why not tolled was that they were informed of them during the time of consent for the procedure so they considered that it was minor.

Table 1: Patient characteristics.

AGE	NUMBER OF CASES	PERCENTAGE
LESS THAN 20 YEARS	4	1.18%
21-30 YEARS	52	15.34%
31-40 YEARS	34	10.03%
41-50 YEARS	106	31.27%
51-60 YEARS	98	28.91%
MORE THAN 60	45	13.27%
GENDER	NUMBER OF CASES	PERCENTAGE

MALE	226	66.67%
FEMALE	113	33.33%
TYPE OF IMAGING	NUMBER OF CASES	PERCENTAGE
MRI	55	16.22%
CT	284	83.78%



Graph 2: Adversse effects noted.

DISCUSSION

In modern practice, various contrast agents in the diagnostic modalities that are used in the evaluation, diagnosis and management of various diseases. There are several reports of adverse reactions related to the use of contrast, though it is not as common as conventional drugs. Adverse reactions related to contrast agents have been not widely reported and documented.

Adverse drug reaction (ADR) is a common occurrence in clinical practice. It is responsible for significant morbidity, mortality, and the overall increase in patients' health-care expenditure. The incidence of ADRs that lead to hospitalization and that developed during hospitalization (ADRIn) and factors affecting in Indian population.

Tejas et al noted that the overall he median incidence of ADR lead to hospitalization and ADRI developed during hospitalization were 2.85% (IOR: 1.25 - 3.93%) and 6.34% (IQR: 3.36 - 16.37%), respectively.

As the number of CT scanners increases, the number of diagnostic CT imaging studies increases as well as their side effects, including iatrogenic cancer[5] and adverse events from iodine-containing contrast agents.

In a study by Lisa R Shah-Patel[4] that enrolled over lac patients who underwent various radiological procedures like CT, MRI note the rate of adverse events to be of which only 35% required assistance.

Judith A W Webb et al[9] noted that late adverse reactions after intravascular iodinated contrast medium include symptoms such as nausea, vomiting, headache, itching, skin rash, musculoskeletal pain, and fever. significant proportion of these reactions is unrelated to the contrast medium; however, allergy-like skin reactions are well-documented side effects of contrast media with an incidence of approximately 2%.

Daiki Kobayashi et al[6] noted that 2.0%; in the derivation group and 2.1% adverse effects. Severe reactions, such as shock, hypotension, desaturation, and airway obstruction were observed in 0.0005 in the derivation group and 0.0008% in the validation group. The most frequent reaction was nausea and/or vomiting at 241 occurrences 31.8%, followed by rash at 25%, and coughing or sneezing at 7.9%.

ST Cochran et al[7] noted that e selective use of contrast material, the adverse reaction rate was 0.6% and 0.7%, respectively, for ionic and nonionic agents. The rate decreased to 0.2% with the universal use of nonionic agents. More than 90% of adverse reactions were allergic-like. In 0.05% there were severe adverse events and no deaths occurred.

We concluded that

The incidence of serious side effects to the use of contrasts is negligible and they can be safely used in radiological practice.

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