



Increase in Incidence of Gall-Bladder Carcinoma in Tea-Estate Workers in a Tertiary Care Centre

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Objective: To calculate the increase in carcinoma Gall-Bladder in Tea-Estate workers in a Tertiary Care Centre (AMCH)

Introduction: Gallbladder carcinoma (GBC) arises from the epithelial lining of the gallbladder (GB) and the cystic duct. It is the most common biliary tract malignancy worldwide. North, East, Northeast and Central India are regions with high incidence of gallbladder carcinoma in contrast to South and West India.

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Material and Methodology: Patients who were diagnosed with carcinoma GB, admitted under General Surgery, AMCH from July 2014- July 2022 have been included in the study.

Results:

In Male: 03 Cases in 242 Patients with G.B Pathology (b/w 2014-18) and 05 Cases in 274 Patients with G.B Pathology (b/w 2018-22).

In Female: 256 Cases in 2083 Patients with G.B Pathology (b/w 2014-18) and 334 Cases in 2530 Patients with G.B Pathology (b/w 2018-22).

In Male Tea-Garden Population: The rate was 23.07 % (b/w 2014-18) and 23.52% (b/w 2018-22)

In Female Tea-Garden Population: The rate was 60.1 % (b/w 2014-18) and 68.56 % (b/w 2018-22).

Discussion: Dimethoate, Tetradifon, Monocrotophos are few of the toxic compound used as pesticide in the tea garden.

Pesticides can cause intoxication in the individuals who manipulate them through either inhalation, ingestion, or dermal contact. It causes damage to the DNA. Although it is mentioned in many research articles about the strong association between the pesticides and carcinogenesis; the use of such substance is not banned nor there is awareness created regarding the maximum and minimum exposure amount.

Conclusion: The incidence of Gall Bladder carcinoma are on the rise, as per study in the tertiary care centre. Cases are more rising in female as compared to male. Cases of Carcinoma Gall Bladder in north-east region is significantly high and are on the rise; suspicion regarding the use of pesticides in the Tea-gardens.

Keywords: Gall bladder; cancer; pesticides; North-East; Tea-Estate workers; carcinogenesis; DNA damage.

1. INTRODUCTION

Gallbladder carcinoma (GBC) arises from the epithelial lining of the gallbladder (GB) and the cystic duct. It is the most common biliary tract malignancy worldwide.

The age standardized rate (ASR) for GBC of North and north-east India are 11.8/100,000 population and 17.1/100,000 population respectively North, East, Northeast and Central India are regions with high incidence of gallbladder carcinoma in contrast to South and West India.

2. CASE PRESENTATION

It is a Retrospective observational case study Patients who were diagnosed with carcinoma GB, admitted under General Surgery, AMCH from July 2014- July 2022 have been included in the study [1,2].

Data collected from AMCH Cancer Registry, M.R.D Office, Admission records of surgery department and O.T records.

Diagnosis confirmed by pre-op CECT abdomen and HPR. Over last 08 years (July -14 to July-22), Total 71,541 cases admitted under General

Surgery from O.P.D & Emergency department have been included in the study.

3. DISCUSSION

3.1 In Male

03 cases in 242 Patients with G.B Pathology (b/w 2014-18) and 05 cases in 274 Patients with G.B Pathology (b/w 2018-22).

3.2 In Female

256 cases in 2083 Patients with G.B Pathology (b/w 2014-18) and 334 cases in 2530 patients with G.B Pathology (b/w 2018-22).

3.3 In Male Tea-Garden Population

The rate was 23.07 % (b/w 2014-18) and 23.52% (b/w 2018-22)

3.4 In Female Tea-Garden Population

The rate was 60.1 % (b/w 2014-18) and 68.56 % (b/w 2018-22).

Dimethoate, Tetradifon, Monocrotophos are few of the toxic compound used as pesticide in the tea garden.

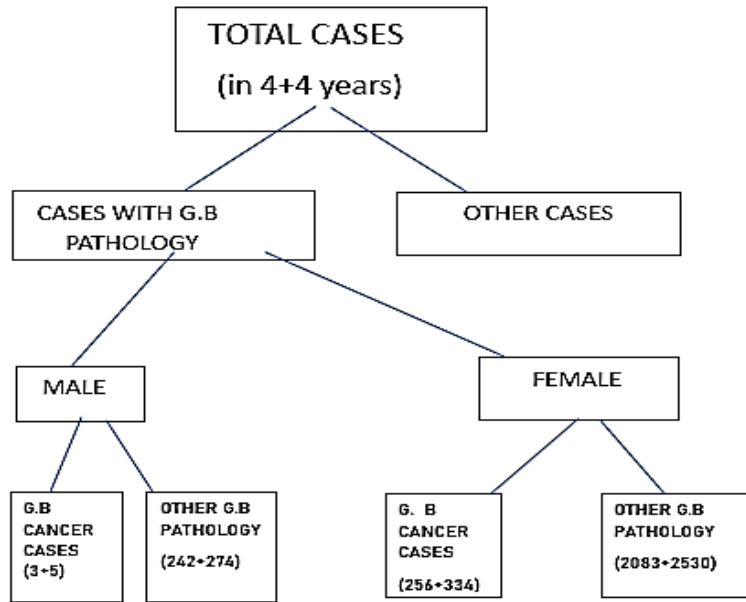


Chart 1. Study protocol

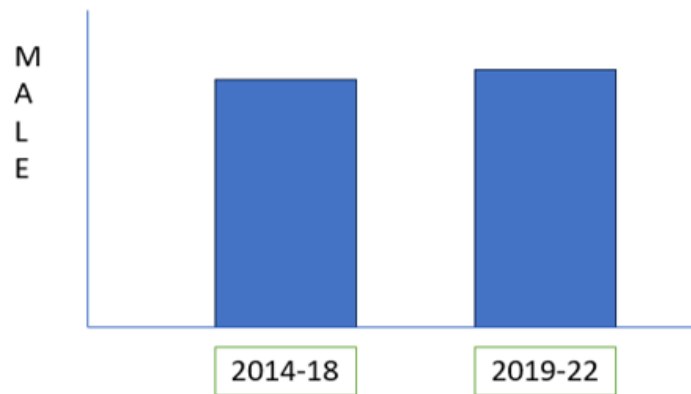


Fig. 1. CA G.B in Tea-garden population

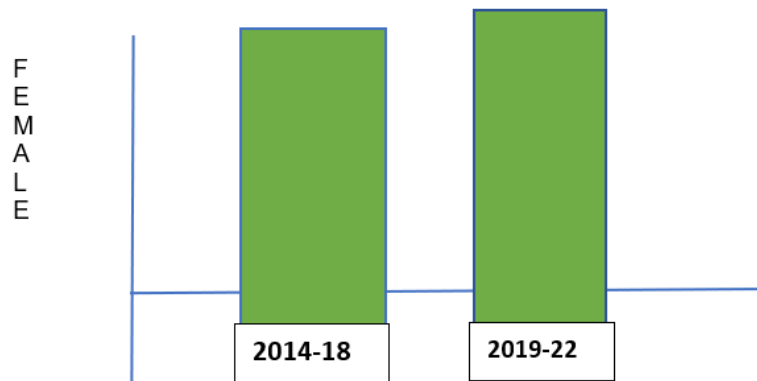


Fig. 2. CA G.B in tea-garden population

Pesticides can cause intoxication in the individuals who manipulate them through either inhalation, ingestion, or dermal contact.

Pesticides can induce the formation of the free radicals that cause oxidative stress, and may provoke changes in the enzymatic system that eliminates and depletes the antioxidant reservoir in the cell, causing damage to the DNA, which may result in mutations, double-strand and chromosomal breaks, and the formation of DNA-adducts [3,4]. Although it is mentioned in many research articles about the strong association between the pesticides and carcinogenesis; the use of such substance is not banned nor there is awareness created regarding the maximum and minimum exposure amount [5].

It is a well-established fact that occupational hazards contribute to carcinogenesis (e.g., in dye workers and urinary bladder cancer), but more studies are needed to examine the impact on tea garden workers and pesticide usage, in order to raise awareness [6-8].

4. CONCLUSIONS

Incidence of Gall Bladder carcinoma are on the rise as per study in the tertiary care centre. Cases are more rising in female as compared to male. Cases of Ca Gb in north-east region is significantly high, and are on the rise; suspicion regarding the use of pesticides in Tea-gardens.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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