

Increase in Incidence of Gall-bladder Carcinoma in Tea-estate Workers in a Tertiary Care Centre

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 among the high incidence areas for gallbladder in contrast to South and West India.

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

Results:

IN MALE: 03 in 242- G.B Pathology patients (b/w 2014-18) and 05 in 274- G.B Pathology patients (b/w 2018-22).

IN FEMALE: 256 in 2083 - G.B Pathology patients (b/w 2014-18) and 334 in 2530- G.B Pathology patients (b/w 2018-22).

IN MALE TEA-GARDEN POPULATION : It was 23.07 % (b/w 2014-18) and 23.52% (b/w 2018-22)

IN FEMALE TEA-GARDEN POPULATION : It 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: Gall Bladder carcinoma is in rising trend 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 in raising trends; suspicion towards use of pesticides in the Tea-gardens.

Key-words: Gall bladder, Cancer, Pesticides, North-East, Tea-Estate workers, Carcinogenesis, DNA damage.

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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 among the high incidence areas for gallbladder in contrast to South and West India.

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 are included in the study.

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 has been included in the study.

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UNDER PEER REVIEW

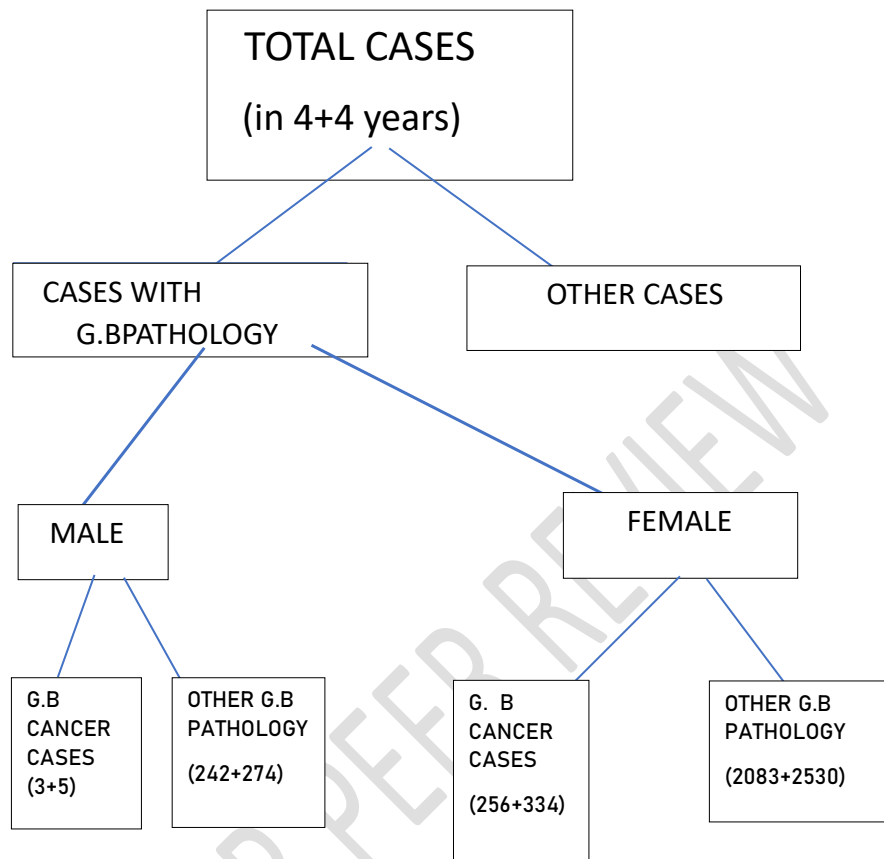


Chart 1 :Study protocol

Discussion:

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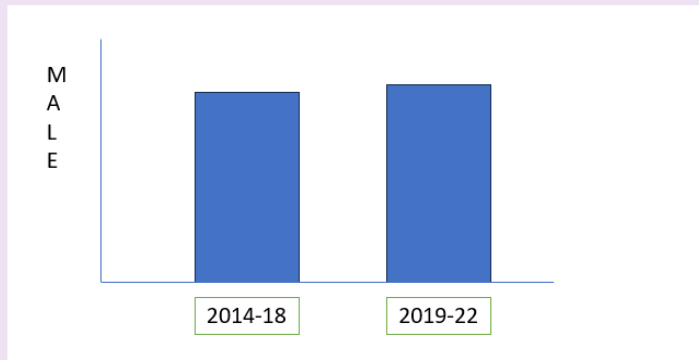
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Why this breakup in time period?

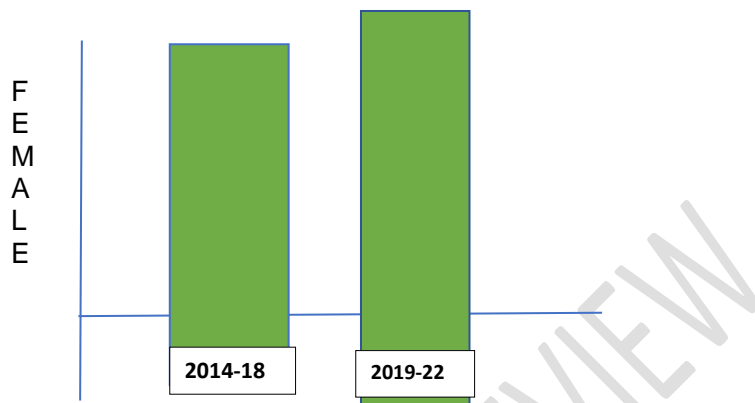
PEER REVIEW

Fig 1 : CA G.B IN TEA-GARDEN POPULATION



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Fig 2 : CA G.B IN TEA-GARDEN POPULATION



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.

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. 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.

It is well established fact that occupation hazards do constitute to the carcinogenesis (dye workers and urinary bladder CA) but more studies needs to be done in the

aspect of tea garden workers and pesticide usage ;to create more awareness.

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Conclusions : Gall Bladder carcinoma is in rising trend 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 in raising trends; suspicion towards use of pesticides in the Tea-gardens.

References :

1. Mishra, Kumudesh¹; Behari, Anu¹; Shukla, Pooja¹; Tsuchiya, Yasuo²; Endoh, Kazuo³; Asai, Takao⁴; Ikoma, Toshikazu⁵; Nakamura, Kazutoshi²; Kapoor, Vinay Kumar¹. Risk factors for gallbladder cancer development in northern India: A gallstones-matched, case-control study. *Indian Journal of Medical Research* 154(5):p 699-706, November 2021. | DOI: 10.4103/ijmr.IJMR_201_19
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Very few references

Add more relevant references

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