

**The prevalence of secondary cardiac tumors :
a meta-analysis**

INPLASY202380082

doi: 10.37766/inplasy2023.8.0082

Received: 19 August 2023

Published: 19 August 2023

Corresponding author:

Hao Chen

ery_chenh@lzu.edu.cn

Author Affiliation:The Second Clinical Medical
College, Lanzhou University,
Lanzhou, China.Hu, YH¹; Yang, L²; Yu, Y³; Li, HY⁴; Li, ZQ⁵; Yu, XL⁶; Li, HL⁷.**ADMINISTRATIVE INFORMATION****Support** - Scientific Research of Health Services Program of Gansu Province(GSWSKY2020-60); Natural Science Foundation of Gansu Province (17JR5A169); Innovation FundProject of colleges and universities in Gansu Province (2022A-071); Scientific research projects of colleges and universities in Gansu Province (2016A-045); Gansu University of Chinese Medicine Scientific Research and Innovation Fund project (2019KC2D-I); and Science and Technology Program of Gansu Province Innovation Base and Talent Plan(18JR2FA002); Lanzhou Science and Technology Development Program Project (2021-1-99); New Crown Pneumonia Prevention and Control Technology Research Project (2020-XG-27).**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202380082**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 August 2023 and was last updated on 19 August 2023.**INTRODUCTION**

Review question / Objective The aim of this study was to evaluate the epidemiology of secondary cardiac tumors and the frequency of metastasis of different tumors to the heart, and to provide a referable data for clinical diagnosis and treatment of secondary cardiac tumors and assessment of prognosis.

Condition being studied Secondary cardiac tumors usually occur late in the course of the disease and are a direct cause of death from the primary tumor. The incidence of cardiac metastatic tumors at autopsy is about 10%, and nonselective autopsy series report an incidence of 0.2%-6.5%.The disease has a low prevalence, a poor prognosis and is difficult to treat clinically.

Therefore, clarifying the epidemiology of secondary cardiac tumors and knowing whether their prevalence is related to gender, region, tumor location, survival and other unknown factors will facilitate the evaluation of the diagnosis and treatment of the disease and increase awareness of its existence.

METHODS

Participant or population Patients diagnosed with secondary cardiac tumors were eligible for inclusion in this article regardless of cancer stage or grade. The primary location of the cancer was limited to cardiac anatomy. Studies reporting secondary cardiac tumors will be included only if separate data for the cancer is provided.

Intervention There are no restrictions on the interventions in this review. The aim was to assess the proportion of secondary cardiac tumors among different primary tumors, so patients receiving any type of intervention will be included.

Comparator Comparator will not be required for this review due to its non-interventional nature. Studies with different intervention arms will be excluded if they do not have either a sum value or original data available for each arm.

Study designs to be included A comprehensive literature screening was performed to identify articles reporting secondary malignant cardiac tumors. Their prevalence was evaluated and further analyzed according to gender, region, cardiac localization of the tumor, and location of the primary tumor. Finally, a random-effects model with meta-regression analysis was used to identify factors associated with the prevalence of secondary malignant cardiac tumors.

Eligibility criteria Inclusion criteria: The type of study was an observational study of secondary cardiac tumors (including prospective cohort studies, retrospective studies, and cross-sectional studies); the study population consisted of patients with a definitive diagnosis of metastatic tumor of heart; and the outcome metrics included the prevalence of Secondary heart tumors. Exclusion criteria: case reports, case series, letters, conference abstracts, systematic evaluations, nonclinical studies, patient samples totaling less than 10, and literature for which key information was not available.

Information sources Searching Medline, Embase, Web of Science, and the Cochrane Library from inception to June 2023. Two reviewers will independently screen the title/abstract and full texts of identified records according to the eligibility criteria. Data from eligible studies will be extracted and used for meta-analysis. using the terms 'Heart', 'Neoplasm' and 'Neoplasm Metastasis'. The literature search was limited to human studies published in English.

Main outcome(s)

1. To explore the incidence of secondary cardiac tumors;
2. To explore the incidence of secondary cardiac tumors in different tumor types;
3. To explore the survival rate of secondary cardiac tumors;
4. To explore the variability in the location of tumor colonization in secondary cardiac tumors;
5. To investigate the occurrence of combined metastases secondary to cardiac tumors.

6. To explore whether secondary cardiac tumors are differentiated by gender, region, and time.

Quality assessment / Risk of bias analysis Risk of literature bias for cohort studies in the included literature was assessed using Newcastle-Ottawa Scale, NOS. Use Agency for Healthcare Research and Quality, AHRQ to assess the risk of literature bias for retrospective and cross-sectional studies in the included literature. The higher the rating the higher the quality of the literature, and the above quality ratings were assessed after discussion between the two researchers.

Strategy of data synthesis Searching Medline, Embase, Web of Science, and the Cochrane Library from inception to June 2023. Data from eligible studies will be extracted and used for meta-analysis. using the terms 'Heart', 'Neoplasm' and 'Neoplasm Metastasis'. The literature search was limited to human studies published in English. We will collect three types of information from each included study, i.e., the bibliometric data of included literature, general study information, and outcomes of interests. Specifically, the following items will be obtained: the first author, publication year, country, study type, sample size, characteristics of patients, primary site of colon cancer, proportion, and location of metastasis.

Subgroup analysis Subgroup analyses included: gender, region, cardiac localization of the tumor, primary tumor location, concurrent metastases, and time of publication.

Sensitivity analysis Since this study is a single rate analysis, sensitivity analysis is not done.

Country(ies) involved China.

Keywords Secondary heart tumors; Cardiac tumors; Meta-regression.

Contributions of each author

Author 1 - Yonghua Hu.
Email: huyonghua2019@126.com
Author 2 - Lei Yang.
Email: 2580446858@qq.com
Author 3 - Yang Yu.
Author 4 - Haiyuan Li.
Author 5 - Zhiqing Li.
Author 6 - Xiaoli Yu.
Author 7 - Hailong Li.
Author 8 - Hao Chen.
Email: ery_chenh@lzu.edu.cn