Data in Brief 35 (2021) 106925

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Descriptive statistics of dataset from the meta-analysis and meta-regression analysis on prognostic significance of pre-treatment systemic hemato-immunological indices of cervical cancer patients

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ARTICLE INFO

Article history:
Received 27 January 2021
Revised 23 February 2021
Accepted 23 February 2021
Available online 3 March 2021

ABSTRACT

In this study, we perform a meta-analysis and meta-regression analysis for the article entitled "Prognostic value of systemic hemato-immunological indices in uterine cervical cancer: A systemic review, meta-analysis, and meta-regression of observational studies." [1] We implemented quantitative meta-analyses and time

DOI of original article: 10.1016/j.ygyno.2020.10.011
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https://doi.org/10.1016/j.dib.2021.106925

Keywords:
Systemic immune-inflammation response
Uterine cervical cancer
Meta-analysis
Meta-regression analysis

series meta-regression analysis to determine whether systemic hemato-immunological indices, such as neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), lymphocyte-to-monocyte ratio (LMR), thrombocyte-to-lymphocyte ratio (TLR), and C-reactive protein/albumin ratio (CAR) are associated with an increased risk of cervical collision cancer. In all, 9558 patients from 22 studies were included after a systematic data search, performed comprehensively using the following databases: MEDLINE, Web of Science, Embase, and Cochrane. The meta-analysis was conducted with a random-effects model using the Review Manager software (Revman version 5.3). The overall survival (OS), disease-free survival (DFS), and progression-free survival (PFS) data were compared among each observational study. All data are expressed as hazard ratios (HRs) and 95% confidence intervals (CIs), and were calculated using the generic inverse of variance method. Statistical heterogeneity was quantified using Cochrane's Q statistic and Higgins I^2 statistic. Subgroup analysis was performed to investigate the sources of heterogeneity. Furthermore, quality assessment of the included datasets was presented according to the Newcastle-Ottawa Scale method. Additionally, sensitivity analysis was conducted to explore the sources of heterogeneity and analyze whether the results were stable and reliable. Meta-analysis random-effect approach was used for the regression to evaluate the effect of age, presence of squamous cell carcinoma patients, and number of evaluated NLR and PLR parameters on patient survival.

Specifications Table

Subject	Cancer Research
Specific subject area	Detection of prognostic biomarkers in uterine cervical cancer
Type of data	Table, Graph, Figure
How data were acquired	Data were acquired from published articles by a systematic search of the following databases: PubMed, Web of Science, Embase, and Cochrane. Recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement guidelines for Public databases were followed [2,3]. The following subsequent search strategy was used: "NLR" (or "neutrophil to lymphocyte ratio,") OR "PLR" (or "platelet to lymphocyte ratio,") OR "LMR" (or "lymphocyte to monocyte ratio,") OR "TRL" (or "tumor-related leukocytosis,") OR "CAR" (or "C- reactive protein to albumin ratio,") AND "cervical cancer" (or "uterine cervical neoplasm,") AND "prognosis" (or "survival"). Related articles and reference lists in each identified publication were reviewed. All selected articles were retrieved and screened by two independent investigators. Language was restricted to English or Chinese.
Data format	Raw and Analyzed
Parameters for data collection	The publication data (the first author name, publication year, country of origin, study period, sample size, and quality scores), demographic data (age), treatment strategy, tumor data, tumor stage (according The FIGO (International Federation of Gynecology and Obstetrics) staging system), cut-off value, survival data (overall survival, disease-free survival, and progression-free survival), and hazard ratios estimation were extracted from the included studies.

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Description of data collection	All data collections were reviewed according to population, intervention, control, and outcomes (PICO) principle [4]. Data were extracted from peer-reviewed journal articles, according to the inclusion and exclusion criteria. The electronic databases were searched for relevant articles. The Cochrane Risk of Bias Tool was used to evaluate the methodological quality of the included data. Brief descriptions and graphs of the variables contained in each dataset are provided in the form of means, quartiles, standard deviation, and standard error. All statistical analyses were performed using MetaDiSc version 1.4 and R software (version 4) including the package "mada".
Data source location	Institution: Department of Oncology, The Affiliated Hospital of Southwest Medical University, City/Town/Region: Luzhou/Sichuan Country: People's republic of China
Data accessibility	Repository name: Mendeley data Data identification number: https://doi.org/10.17632/r9ft9txkct.1 Direct link: https://data.mendeley.com/datasets/r9ft9txkct/1
Related research article	Han, X., S. Liu, G. Yang, H. Hosseinifard, S. Imani, L. Yang, M. Maghsoudloo, S. Fu, Q. Wen, and Q. Liu, Prognostic value of systemic hemato-immunological indices in uterine cervical cancer: A systemic review, meta-analysis, and meta-regression of observational studies, Gynecol Oncol. (2020). https://doi.org/10.1016/j.ygyno.2020.10.011. [1]

Value of the Data

- Systemic hemato-immunological indices serve as a predicative biomarker of poor prognosis in patients with cervical cancer.
- The logistic meta-regression analyses show novel associations between systemic hemato-immunological indices and risk of cervical collision cancer, underscoring the efficacy and accuracy of this analysis. Likewise, the risk of cervical collision cancer was significantly affected by other parameters such as age and number of patients.
- This dataset could be useful for medical oncologists, physician scientists, and related scientific communities to implement tumor hemato-immunological indices as promising predicative biomarker in cervical cancer patients. This may ultimately help improve treatment planning strategies.

1. Data Description

The data presented in this paper describe the Supplementary Information of the original article. Data will be described in the same order of appearance as in the text of the article [1]. The basic data was collected by performing a systematic search according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. In all, 9558 patients from 22 studies [5-26] were included in this analysis. The step-by-step search strategies are detailed in Table 1. After systematically searching public databases, including PubMed, EBSCO, Google Scholar, and Web of Science, until May 15, 2020, 22 full-text articles were retrieved and screened by two investigators separately (SI and XH).

Table 2 shows the survival outcomes from the included studies. Six studies reported on the relationship between systemic hemato-immunological indices and clinicopathological parameters such as overall survival (OS) (44.2%) and OS+ progression-free survival (PFS) (30.3%). We methodologically evaluated the eligibility of all studies according to the Newcastle-Ottawa Scale (NOS) [27] protocols and Quality Assessment of Diagnostic Accuracy Studies 2 (QUADAS-2) quality evaluation standards of the Cochrane Reviewer handbook.

Detailed quality assessment data for each selected study are summarized in Table 3. Overall, the average NOS score was categorized as high quality (7.6/10; range: 7 to 9).

Table 1
The detailed search strategy and data exctraction.

(1) PUBMED database
Step 1: (#1) Number: 4325,417 (cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma)
Step 2: (#2) Number: 4612,616 (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome)
Step 3: (#3) Number: 8721 (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio)
Step 4: (#4) Number: 8921 (PLR [MeSH Terms]) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio)
Step 5: (#5) Number: 3436 (LMR [MeSH Terms]) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) OR (lymphocyte/ monocyte ratio) OR (lymphocyte / monocyte ratio) OR (lymphocyte- to -monocyte ratio) OR (MRL [MeSH Terms]) OR (monocyte to lymphocyte ratio) OR (monocyte-to-lymphocyte ratio) OR (monocyte/lymphocyte ratio) OR (monocyte-lymphocyte ratio) OR (monocyte/ lymphocyte ratio) OR (monocyte / lymphocyte ratio) OR (monocyte- to -lymphocyte ratio)
Step 6: (#6) Number: 635 (TRL [MeSH Terms]) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) OR (tumor related leukocytosis)
Step 7: (#7) Number: 15,401 (CAR [MeSH Terms]) OR (C- reactive protein to albumin ratio) OR (C-reactive protein to albumin ratio) OR (C- reactive protein/albumin ratio) OR (C-reactive protein/albumin ratio) OR (C-reactive protein-to-albumin ratio) OR (C- reactive protein to albumin ratio)
Step 8: (#8) Number: 121,451 (SII [MeSH Terms]) OR (C systemic immune-inflammatory index) OR (systemic immune- inflammatory index) OR (systemic immune inflammatory index) OR (systemic immunity and inflammatory index) OR (systemic immunity-inflammatory index) OR (systemic immunity or inflammatory index)
Step 9: (#1 AND #2= #9) Number: 4344,321 ((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome))
Step 10: (#1 AND #2 AND #3= #10) Number: 8.911 ((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome) AND (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio))
Step 11: (#1 AND #2 AND #3 AND #4= #11) Number: 3.632 ((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome) AND (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio) AND (PLR [MeSH Terms]) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio)
Step 12: (#1 AND #2 AND #3 AND #4 AND #5= #12) Number: 3.215 ((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome) AND (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio) AND (PLR [MeSH Terms]) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio)

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Table 1 (*continued*)

AND (LMR [MeSH Terms]) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) OR (lymphocyte/ monocyte ratio) OR (lymphocyte / monocyte ratio) OR (lymphocyte- to -monocyte ratio) OR (MRL [MeSH Terms]) OR (monocyte to lymphocyte ratio) OR (monocyte-to-lymphocyte ratio) OR (monocyte/lymphocyte ratio) OR (monocyte-lymphocyte ratio) OR (monocyte/ lymphocyte ratio) OR (monocyte / lymphocyte ratio) OR (monocyte- to -lymphocyte ratio))

Step 13: (#1 AND #2 AND #3 AND #4 AND #5 AND #6= #13) Number: 638
((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome) AND (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio) AND (PLR [MeSH Terms]) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio) AND (LMR [MeSH Terms]) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) OR (lymphocyte/ monocyte ratio) OR (lymphocyte / monocyte ratio) OR (lymphocyte- to -monocyte ratio) OR (MRL [MeSH Terms]) OR (monocyte to lymphocyte ratio) OR (monocyte-to-lymphocyte ratio) OR (monocyte/lymphocyte ratio) OR (monocyte-lymphocyte ratio) OR (monocyte/ lymphocyte ratio) OR (monocyte / lymphocyte ratio) OR (monocyte- to -lymphocyte ratio) AND (TRL [MeSH Terms]) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) OR (tumor related leukocytosis))

Step 14: (#1 AND #2 AND #3 AND #4 AND #5 AND #6 AND #7= #14) Number: 413
((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome) AND (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio) AND (PLR [MeSH Terms]) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio) AND (LMR [MeSH Terms]) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) OR (lymphocyte/ monocyte ratio) OR (lymphocyte / monocyte ratio) OR (lymphocyte- to -monocyte ratio) OR (MRL [MeSH Terms]) OR (monocyte to lymphocyte ratio) OR (monocyte-to-lymphocyte ratio) OR (monocyte/lymphocyte ratio) OR (monocyte-lymphocyte ratio) OR (monocyte/ lymphocyte ratio) OR (monocyte / lymphocyte ratio) OR (monocyte- to -lymphocyte ratio) AND (TRL [MeSH Terms]) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) OR (tumor related leukocytosis) AND (CAR [MeSH Terms]) OR (C- reactive protein to albumin ratio) OR (C-reactive protein to albumin ratio) OR (C- reactive protein/albumin ratio) OR (C-reactive protein/albumin ratio) OR (C-reactive protein-to-albumin ratio) OR (C- reactive protein to albumin ratio))

Step 15: (#1 AND #2 AND #3 AND #4 AND #5 AND #6 AND #7 AND #8= #15) Number: 236
((cervical cancer [MeSH Terms]) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis[MeSH Terms]) OR (Survival) OR (Outcome) AND (NLR [MeSH Terms]) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil- to -lymphocyte ratio) AND (PLR [MeSH Terms]) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio) AND (LMR [MeSH Terms]) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) OR (lymphocyte/ monocyte ratio) OR (lymphocyte / monocyte ratio) OR (lymphocyte- to -monocyte ratio) OR (MRL [MeSH Terms]) OR (monocyte to lymphocyte ratio) OR (monocyte-to-lymphocyte ratio) OR (monocyte/lymphocyte ratio) OR (monocyte-lymphocyte ratio) OR (monocyte/ lymphocyte ratio) OR (monocyte / lymphocyte ratio) OR (monocyte- to -lymphocyte ratio) AND (TRL [MeSH Terms]) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) OR (tumor related leukocytosis) AND (CAR [MeSH Terms]) OR (C- reactive protein to albumin ratio) OR (C-reactive protein to albumin ratio) OR (C- reactive protein/albumin ratio) OR (C-reactive protein/albumin ratio) OR (C-reactive protein-to-albumin ratio) OR (C- reactive protein to albumin ratio) AND (SII [MeSH Terms]) OR (C systemic immune-inflammatory index) OR (systemic immune- inflammatory index) OR (systemic immune inflammatory index) OR (systemic immunity and inflammatory index) OR (systemic immunity-inflammatory index) OR (systemic immunity or inflammatory index))
Timespan: All years.
Search language=Auto

Number: 233

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Table 1 (*continued*)

(2) Scopuse database
(TITLE-ABS-KEY AND (cervical cancer) OR (uterine cervical) OR (uterine neoplasm) OR (cervical carcinoma)) AND TITLE-ABS-KEY ("Prognosis) OR (Survival) OR (Outcome") AND TITLE-ABS-KEY (melanoma) OR (non-melanoma) OR (nonmelanoma) OR (basal cell carcinoma) OR (squamous cell carcinoma) OR (cancer) OR (neoplasms) OR (malignant melanoma) OR (neoplasm) OR (basal-cell skin cancer) OR (squamous-cell skin cancer) OR (Skin Neoplasms) OR (skin cancer)) AND TITLE-ABS-KEY (NLR) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio)) AND TITLE-ABS-KEY (PLR) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) AND TITLE-ABS-KEY (LMR) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) AND TITLE-ABS-KEY (TRL) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) AND TITLE-ABS-KEY (CAR) OR (C- reactive protein to albumin ratio) (C- reactive protein/albumin ratio) AND TITLE-ABS-KEY (SII) OR (C systemic immune-inflammatory index) OR (systemic immune inflammatory index) OR (systemic immunity and inflammatory index))
Number: 76
(3) Google Scholar database
(cervical cancer) OR (uterine cervical) OR (uterine cervical neoplasm) OR (uterine neoplasm) OR (cancer) OR (neoplasms) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis) OR (Survival) OR (Outcome) AND (NLR) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) OR (Neutrophil/ lymphocyte ratio) OR (Neutrophil / lymphocyte ratio) OR (neutrophil-to -lymphocyte ratio) AND (PLR) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) OR (platelet/ lymphocyte ratio) OR (platelet / lymphocyte ratio) OR (platelet- to -lymphocyte ratio) AND (LMR) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) OR (lymphocyte/ monocyte ratio) OR (lymphocyte / monocyte ratio) OR (lymphocyte- to -monocyte ratio) OR (MRL) OR (monocyte to lymphocyte ratio) OR (monocyte-to-lymphocyte ratio) OR (monocyte/lymphocyte ratio) OR (monocyte-lymphocyte ratio) OR (monocyte/ lymphocyte ratio) OR (monocyte / lymphocyte ratio) OR (monocyte- to -lymphocyte ratio) AND (TRL) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) OR (tumor related leukocytosis) AND (CAR) OR (C-reactive protein to albumin ratio) OR (C-reactive protein to albumin ratio) OR (C- reactive protein/albumin ratio) OR (C-reactive protein/albumin ratio) OR (C-reactive protein-to-albumin ratio) OR (C- reactive protein to albumin ratio) AND (SII) OR (C systemic immune-inflammatory index) OR (systemic immune- inflammatory index) OR (systemic immune inflammatory index) Timespan: All years. Search language=Auto
Number: 159
(4) Web of Science database
TOPIC: (cervical cancer) OR (uterine cervical) OR (uterine neoplasm) OR (cervix cancer) OR (cervical carcinoma) AND (Prognosis) OR (Survival) OR (Outcome) AND (NLR) OR (neutrophil to lymphocyte ratio) OR (neutrophil-to-lymphocyte ratio) OR (Neutrophil/lymphocyte ratio) OR (neutrophil-lymphocyte ratio) AND (PLR) OR (platelet to lymphocyte ratio) OR (platelet-to-lymphocyte ratio) OR (platelet/lymphocyte ratio) OR (platelet-lymphocyte ratio) AND (LMR) OR (lymphocyte to monocyte ratio) OR (lymphocyte-to-monocyte ratio) OR (lymphocyte/monocyte ratio) OR (lymphocyte-monocyte ratio) AND (TRL) OR (tumor-related leukocytosis) OR (tumor -related leukocytosis) AND (CAR) OR (C- reactive protein to albumin ratio) OR (C-reactive protein to albumin ratio) OR (C- reactive protein/albumin ratio) OR (C-reactive protein/albumin ratio) OR (C-reactive protein-to-albumin ratio) AND (SII) OR (C systemic immune-inflammatory index) OR (systemic immune- inflammatory index) OR (systemic immune inflammatory index) Timespan: All years. Search language=Auto
Number: 73

Individually, all parameters of QUADAS-2 assessment are illustrated in Fig. 1. As shown in Fig. 1, the overall risk (Fig. 1A) and applicability concerns (Fig. 1C) are presented as percentages across selected studies.

The association between different hemato-immunological indices and cervical cancer prognosis is summarized in Table 4, showing the pooled HRs for all included studies; in addition a description of qualitative variables pre-study is shown in Table 5.

Table 2
Survival outcomes of included studies.

Author (Ref.)	Parameter	Cut-off	No. of elevated (%)	Survival outcome	Analysis	Follow-up median (month)
Mabuchi et al. [13]	TRL	10.000/μl	50 (9.3)	OS, PFS	Univariate, Multivariate	77
Cho et al. [20]	NLR	1.90	575 (68.45)	OS, PFS	Univariate, Multivariate	52.9
Nakamura et al. [14]	TRL	10.000/μl	37 (14.3)	OS	Multivariate	NR
Haraga et al. [15]	NLR	3.50	68 (69.4)	OS, PFS	Multivariate	NR
	PLR	322.00	NA	OS	Univariate, Multivariate	NR
Chen et al. [6]	LMR	2.87	336 (69.3)	OS, PFS	Univariate, Multivariate	75
Ida et al. [16]	NLR[a]	2.81	NR	OS	Univariate	NR
	NLR[b]	2.81	NR	OS	Univariate	NR
	PLR[a]	163	NR	OS	Univariate	NR
	PLR[b]	130.00	NR	OS	Univariate	NR
Zheng et al. [7]	NLR	2.31	NR	OS, PFS	Univariate, Multivariate	Up to 2014.12
	PLR	97.80	NR	OS, PFS	Univariate, Multivariate	Up to 2014.12
Lee et al. [21]	TRL	9.000/μl	398 (16)	OS, PFS	Univariate	65.1
Zhang et al. [8]	NLR	2.77	433 (54.5)	OS	Univariate	62.3
	PLR	128.30	319 (40.1)	OS, DFS	Univariate	62.3
Mao et al. [9]	NLR	4.00	77 (32.8)	OS, PFS	Univariate	77
	CAR	0.15	113 (48.1)	OS, PFS	Univariate, Multivariate	77
	PLR	210.40	NR	OS, PFS	Univariate, Multivariate	77
Holub and Biete [24]	NLR	5.00	52 (20.2)	OS, PFS	Univariate	40.8
Kozasa et al. [17]	NLR	2.80	49 (62.1)	OS	Univariate	2–93
	PLR	260.00	44 (55.7)	OS	Univariate, Multivariate	2–93
Lee et al. [22]	NLR	2.10	NR	PFS, DRFS	Univariate, Multivariate	26.2
	PLR	170.00	NR	PFS, DRFS	Univariate, Multivariate	26.2
Nakamura et al. [18]	PLR	129.00	281.5 (41.2)	OS, PFS	Univariate, Multivariate	NR
Whiting et al. [29]	PLR	143.79	141 (41.6)	OS, PFS	Multivariate	44

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Table 2 (*continued*)

Author (Ref.)	Parameter	Cut-off	No. of elevated (%)	Survival outcome	Analysis	Follow-up median (month)
Lee et al. [19]	PLR	332.00	NR	OS	Univariate, Multivariate	6.6
Abu-Shawer et al. [25]	NLR	3.80	36 (23.8)	OS	Univariate	43.8
	PLR	200.00	NR	OS	Univariate	43.8
	SII	1000	55 (36.4)	OS	Univariate	43.8
Huang et al. [11]	NLR	1.60	NR	OS	Univariate	Up to 2016.01
	PLR	149.27	NR	OS	Univariate	Up to 2016.01
	CAR	0.022	NR	OS	Univariate	Up to 2016.01
Farzaneh et al. [26]	PLR	200.00	NR	OS, EFS	Univariate	NR
	LMR	0.30	NR	OS, EFS	Univariate	NR
Mabuchi et al. [12]	NLR	2.40	153 (33.4)	OS	Univariate, Multivariate	47
	PLR	118	190 (41.5)	OS	Univariate, Multivariate	47
	LMR	0.26	205 (44.8)	OS	Univariate, Multivariate	47
	TRL	9000/μl	75 (16.4)	OS	Univariate, Multivariate	47
	SII	475.00	241 (52.6)	OS	Univariate, Multivariate	47
Stang [27]	NLR	1.90	98 (31.9)	RFS	Univariate	60
	PLR	NR	NR	NR	Univariate	60
Koulis et al. [23]	NLR	4.50	NR	OS, DFS	Univariate	50
	PLR	362.30	NR	OS, DFS	Univariate	50
	LMR	0.228	NR	OS, DFS	Univariate	50

Abbreviations: NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; TLR, thrombocyte-to- lymphocyte ratio; LMR, lymphocyte-to-monocyte ratio; SII, systemic immune-inflammation index; CAR, C-reactive protein/albumin; OS, overall survival; DFS, disease-free survival; PFS, progression-free survival; EFS, event-free survival; DRFS, distant recurrence-free survival; NR, not reported.

Table 3
Quality assessment of included studies according to the Newcastle-Ottawa Scale (NOS).

			Case		Control		Comparability		Exposure				
Author (Ref)	Year	Analyzing	Definition	Representativeness	Selection	Definition	Important factors	Other factors	Secure record	Blind	Method	Non-response rate	NOS
Mabuchi et al. [13]	2011	TRL	⋆	⋆	☆	⋆	⋆	⋆	☆	⋆	⋆	⋆	**8**
Cho et al. [20]	2012	NLR	⋆	⋆	⋆	⋆	☆	☆	⋆	☆	⋆	⋆	**7**
Nakamura et al. [14]	2015	TRL	⋆	☆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	**9**
Haraga et al. [15]	2015	NLR, PLR	☆	⋆	⋆	⋆	⋆	⋆	☆	⋆	⋆	⋆	**8**
Chen et al. [6]	2015	LMR	⋆	☆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	**9**
Ida et al. [16]	2016	NLR, PLR	☆	⋆	⋆	⋆	⋆	⋆	☆	⋆	☆	⋆	**7**
Zheng et al. [7]	2016	NLR, PLR	⋆	⋆	☆	☆	⋆	⋆	⋆	⋆	⋆	☆	**7**
Lee et al. [21]	2016	TRL	⋆	⋆	☆	⋆	⋆	⋆	☆	⋆	⋆	⋆	**8**
Zhang et al. [8]	2016	NLR, PLR	⋆	⋆	⋆	☆	⋆	☆	⋆	☆	⋆	⋆	**7**
Mao et al. [9]	2017	NLR, PLR, CAR	⋆	⋆	⋆	⋆	⋆	⋆	☆	☆	⋆	⋆	**8**
Holub and Biete [24]	2017	NLR	⋆	⋆	☆	⋆	⋆	⋆	⋆	☆	⋆	⋆	**8**
Kozasa et al. [17]	2017	NLR, PLR	☆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	**9**
Lee et al. [22]	2017	NLR, PLR	☆	⋆	⋆	⋆	⋆	⋆	⋆	☆	⋆	☆	**7**
Nakamura et al. [18]	2017	PLR	⋆	☆	☆	⋆	⋆	⋆	⋆	⋆	⋆	⋆	**8**
Whiting et al. [29]	2018	PLR,	⋆	⋆	⋆	⋆	⋆	☆	☆	⋆	⋆	☆	**7**
Lee et al. [19]	2018	PLR	⋆	⋆	⋆	⋆	⋆	⋆	⋆	☆	⋆	⋆	**8**
Abu-Shawer et al. [25]	2018	NLR, PLR, SII	⋆	⋆	⋆	☆	☆	⋆	⋆	⋆	⋆	⋆	**8**
Huang et al. [11]	2018	NLR, PLR, CAR	☆	⋆	⋆	⋆	☆	☆	⋆	☆	⋆	⋆	**6**
Farzaneh et al. [26]	2019	PLR, LMR	⋆	⋆	⋆	☆	⋆	☆	⋆	☆	⋆	⋆	**7**
Mabuchi et al. [12]	2019	NLR, PLR, SII, LMR, TRL	⋆	⋆	☆	⋆	⋆	⋆	☆	⋆	⋆	⋆	**8**
Stang [27]	2019	NLR, PLR	⋆	☆	⋆	⋆	⋆	☆	⋆	☆	⋆	⋆	**7**
Koulis et al. [23]	2020	NLR, PLR, LMR	☆	⋆	⋆	⋆	☆	⋆	⋆	⋆	☆	⋆	**7**

Abbreviation: NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; TLR, thrombocyte-to- lymphocyte ratio; LMR, lymphocyte-to-monocyte ratio; SII, systemic immune-inflammation index; CAR, C-reactive protein/albumin; NOS, The Newcastle-Ottawa Scale.

⋆, score value=1; ☆, score value=0; The specific item information is available from http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp.

* SII = platelet*neutrophil/lymphocyte ratio.

Table 4
Results of meta-analysis of interested outcomes.

Parameter	Studies no. (Paper refer.)	Sample size	Effect size (95% CI)	Z-value	P-value	Study heterogeneity			
						x^2	df**	I^2 (%)	P-value
NLR	15 [7–9,11,12,15–17,20,22–25,27]	4543	2.47 (1.77–3.45)	5.36	≤ 0.001	85.82	13	85.14	≤ 0.001
PLR	17 [7,8,11,12,15–19,22,23,25–27,29]	5094	1.90 (1.45–2.50)	4.59	0.001	106.98	16	86.04	≤ 0.001
TLR	4 [12–14,21]	3450	3.70 (1.76–7.76)	3.46	≤ 0.001	36.11	3	91.69	≤ 0.001
LMR	4 [6,12,23,26]	132	1.32 (0.51–3.43)	0.57	0.57	29.20	3	89.73	≤ 0.001
SII*	2 [12,25]	609	2.40 (1.15–5.02)	2.33	0.02	1.64	1	39.15	0.20
CAR	2 [9,11]	464	3.94 (2.35–6.61)	5.20	≤ 0.001	0.68	1	0.00	0.40

Abbreviations: NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; TLR, thrombocyte-to- lymphocyte ratio; LMR, lymphocyte-to-monocyte ratio; SII, systemic immune-inflammation index; CAR, C-reactive protein/albumin.

* SII = platelet*neutrophil/lymphocyte ratio.

** Random Model of analyzing were used.

Table 5
Results of meta-analysis of interested outcomes per studies.

Parameter	No.	Studies (refer.)	Sample size	Cut-off value	Overall Survival(OS)			Disease-Free Survival (DFS)		
					HRs	95% CI for HRs (Lower-Upper)	P-value	HRs	95% CI for HRs (Lower-Upper)	P-value
NLR	1	Cho et al. [20]	575	1.90	1.19	1.15–1.24	<0.001	1.16	1.12–1.20	<0.001
	2	Haraga et al. [15]	3.5	0.27	0.27	0.14–0.53	<0.001	NA	NA	NA
	3	Ida et al. [16]	131	2.78	1.54	0.72–3.29	0.269	3.59	1.14–11.29	0.029
	4	Ida et al. [16]	131	2.78	4.77	1.33–17.15	0.017	0.72	0.16–3.32	0.678
	5	Zheng et al. [7]	407	2.09	2.28	1.27- 4.08	<0.001	2.32	1.52–3.55	<0.001
	6	Zhang et al. [8]	795	2.77	1.48	0.99–2.20	0.053	1.48	0.99–2.20	0.052
	7	Mao et al. [9]	235	4.00	2.42	1.33–4.41	0.004	2.44	1.38–4.29	0.002
	8	Holub and Biete [24]	257	5.00	1.73	1.10–2.74	0.020	1.76	1.16–2.68	0.008
	9	Kozasa et al. [17]	79	2.80	1.89	1.06–3.39	0.032	NA	NA	NA
	10	Lee et al. [22]	145	2.10	4.77	1.95–11.67	0.006	3.94	1.29–12.05	0.016
	11	Abu-Shawer et al. [25]	151	3.80	1.82	1.05–3.60	0.080	NA	NA	NA
	12	Huang et al. [11]	229	1.60	2.28	1.05–4.97	0.038	NA	NA	NA
	13	Mabuchi et al. [12]	458	2.40	2.21	1.05–4.65	0.037	NA	NA	NA
	14	Stang [27]	307	1.90	4.55	1.97–10.51	<0.001	NA	NA	NA
	15	Koulis et al. [23]	125	5.23	28.72	10.63–77.59	<0.001	7.34	3.96–13.60	<0.001
PLR	1	Haraga et al. [15]	32	322.0	4.81	1.36–16.99	0.015	NA	NA	NA
	2	Ida et al. [16]	131	128.0	1.63	0.75–3.54	0.214	1.52	0.78–2.95	0.215
	3	Ida et al. [16]	131	171.0	2.66	0.74–9.55	0.133	3.06	0.86–10.85	0.084
	4	Zheng et al. [7]	407	152.0	2.22	1.24–3.98	0.007	2.22	1.40–3.52	0.001
	5	Zhang et al. [8]	795	128.3	1.75	1.16–2.62	0.007	1.77	1.18–2.65	0.006
	6	Mao et al. [9]	235	176.5	2.60	1.21–5.60	0.015	2.59	1.26–5.36	0.01
	7	Kozasa et al. [17]	79	260.0	1.82	1.05–3.16	0.032	NA	NA	NA
	8	Lee et al. [22]	145	170.0	4.25	2.08–8.69	0.001	5.88	2.27–15.21	0.003
	9	Nakamura et al. [18]	684	125.3	1.59	1.20–2.11	0.001	1.39	1.07–1.79	0.012
	10	Whiting et al. [29]	365	143.8	3.37	1.25–11.15	0.018	3.15	1.29–7.72	0.012
	11	Lee et al. [19]	32	322.0	4.81	1.36–16.99	0.015	NA	NA	NA
	12	Abu-Shawer et al. [25]	151	210.0	2.32	1.20–4.40	0.009	NA	NA	NA
	13	Huang et al. [11]	738	149.27	2.96	2.07–3.85	0.017	NA	NA	NA
	14	Farzaneh et al. [26]	264	200.0	1.10	0.80.1.50	0.160	1.10	0.90–1.40	0.230
	15	Mabuchi et al. [12]	458	118.0	1.77	1.08–2.91	0.025	NA	NA	NA
	16	Stang [27]	307	NR	1.01	1.00–1.03	0.002	NA	NA	NA
	17	Koulis et al. [23]	145	170.0	4.25	2.08–8.69	0.001	5.88	2.27–15.21	0.003

(*continued on next page*)

Table 5 (*continued*)

Parameter	No.	Studies (refer.)	Sample size	Cut-off value	Overall Survival(OS)			Disease-Free Survival (DFS)		
					HRs	95% CI for HRs (Lower-Upper)	P-value	HRs	95% CI for HRs (Lower-Upper)	P-value
TLR	1	Mabuchi et al. [13]	536	10,000	7.45	5.27–10.54	<0.001	6.63	3.56–12.34	<0.001
	2	Nakamura et al. [14]	258	10,000	4.89	2.76–8.67	<0.001	NA	NA	NA
	3	Lee et al. [21]	2456	9000	2.31	1.89–2.87	<0.001	NA	NA	NA
	4	Mabuchi et al. [12]	458	9000	2.08	0.95–4.54	0.067	2.94	2.35–3.69	<0.001
LMR	1	Chen et al. [6]	485	2.87	0.38	0.23–0.622	<0.001	0.37	0.25–0.56	<0.001
	2	Farzaneh et al. [26]	264	0.3	1.3	0.90–1.80	0.055	1.20	0.90–1.60	<0.001
	3	Mabuchi et al. [12]	458	0.26	2.06	1.00–4.21	0.049	NA	NA	NA
	4	Koulis et al. [23]	125	0.23	3.40	1.52–7.61	0.003	3.14	1.75–6.64	<0.001
SII	1	Abu-Shawer et al. [25]	151	1000	1.83	1.03–3.40	0.055	NA	NA	NA
	2	Mabuchi et al. [12]	458	475	4.04	1.41–11.60	0.009	NA	NA	NA
CAR	1	Mao et al. [9]	235	0.15	4.92	2.36–10.27	<0.001	5.45	2.64–11.26	<0.001
	2	Huang et al. [11]	229	0.022	3.18	1.54–6.57	0.002	NA	NA	NA

Abbreviations: NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; TLR, thrombocyte-to- lymphocyte ratio; LMR, lymphocyte-to-monocyte ratio; SII, systemic immune-inflammation index; CAR, C-reactive protein/albumin; OS, overall survival; DFS, disease-free survival; NR, not reported.

To explore whether the hemato-immunological indices had the most prominent clinicopathological influence on the cervical cancer subgroup or whether other demographic parameters also played significant roles in cervical cancer, we conducted a subgroup analysis based on the available parameters: FIGO clinical stage, sample size, cut-off value, and primary treatment (Figs. 2 and 3). Fig. 2 shows the subgroup analysis data evaluating the differences in neutrophil-to-lymphocyte ratio (NLR) level in cervical cancer patients based on different tumor stages (Fig. 2A), different therapies (Fig. 2B), sample size (Fig. 2C), and cut-off (Fig. 2D).

Fig. 3 shows the forest plot of survival outcomes for the association between serum platelet-to-lymphocyte ratio (PLR) levels and cervical cancer based on different stages (Fig. 3A) and therapies (Fig. 3B). Forest plots showed that an advance stage of cervical cancer was associated with high level of thrombocyte-to-lymphocyte ratio (TLR) (Fig. 3C) and C-reactive protein/albumin ratio (CAR) (Fig. 3D). The difference between high and low systemic hemato-immunological index groups was assessed by calculating the hazard ratios (HRs) with 95% confidence intervals (CIs) in the random-effect model.

Fig. 4 shows the meta-regression plot for the effect of the number of squamous cell carcinoma (SCC) patients (Fig. 4A) and the number of evaluated PLR indices (Fig. 4B) on cervical collision cancer risk. Each bubble on the plot shows the value of the predictor measurement for each study on the horizontal axis and the effect measure “log HR” on the vertical axis. The area of each bubble indicates the weight of the corresponding study in the meta-regression model. Weights are from the random-effects analysis.

The meta-regression analysis data for each study are shown in Table 6. The data show the weight of each study on risk of cervical collision cancer.

2. Experimental Design, Materials and Methods

2.1. Search strategy and data extraction

Articles were searched comprehensively up to May 15, 2020 through four main electronic databases including PubMed, Web of Science, Embase, and Cochrane. Two independent reviewers conducted the screening of articles and cross-checked the results. Differences between reviewers were resolved by a joint discussion and, if necessary, after consulting a third reviewer. In addition, we contacted the original author for more information if data were incomplete. All selected articles were reviewed independently by two investigators according to the Population, intervention, control, and outcomes (PICO) principle [4] and any inconsistencies or disagreements in a search process were resolved through consultations and discussion. If they could not reach an acceptable consensus, a third investigator was contacted to resolve these disagreements after referring to the original data. Moreover, we contacted the corresponding authors of the selected articles to obtain any missing or additional information and copies of original data required for the meta-analysis. If the abovementioned data were not cited in the original study or no response was received, the item was reported as “not available (NA)". Additional details, numerical summaries, and plots for real datasets are detailed in the R datasets package [28]. The code used to produce all items in this study is included in the file entitled “DIBcode.R.” and is included in the Supplementary Information.

2.2. Quality assessment

The diagnostic accuracy of studies was assessed using the QUADAS-2 tool for patient selection, index test, reference standard, and flow timing [29,30]. QUADAS-2 was used to determine the quality of all studies by three authors and any disagreement was resolved through a discussion. Additionally, the risk of bias was calculated according to the criteria from the Cochrane Collaboration’s tool (Cochrane handbook for systematic reviews of interventions version 5.1.0.).

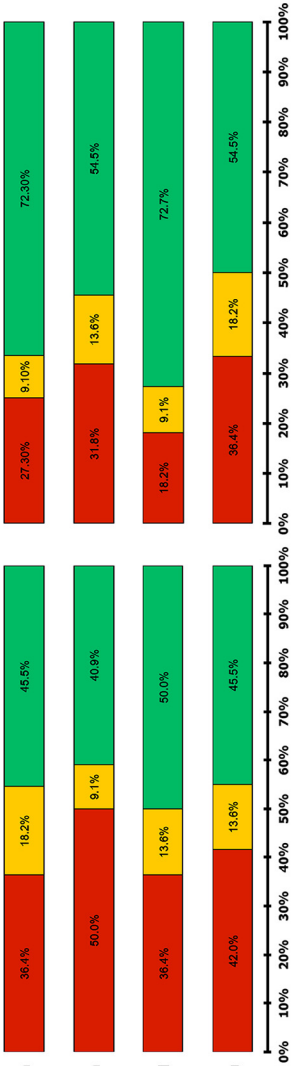

Fig. 1. Graph illustrating the risk of bias.

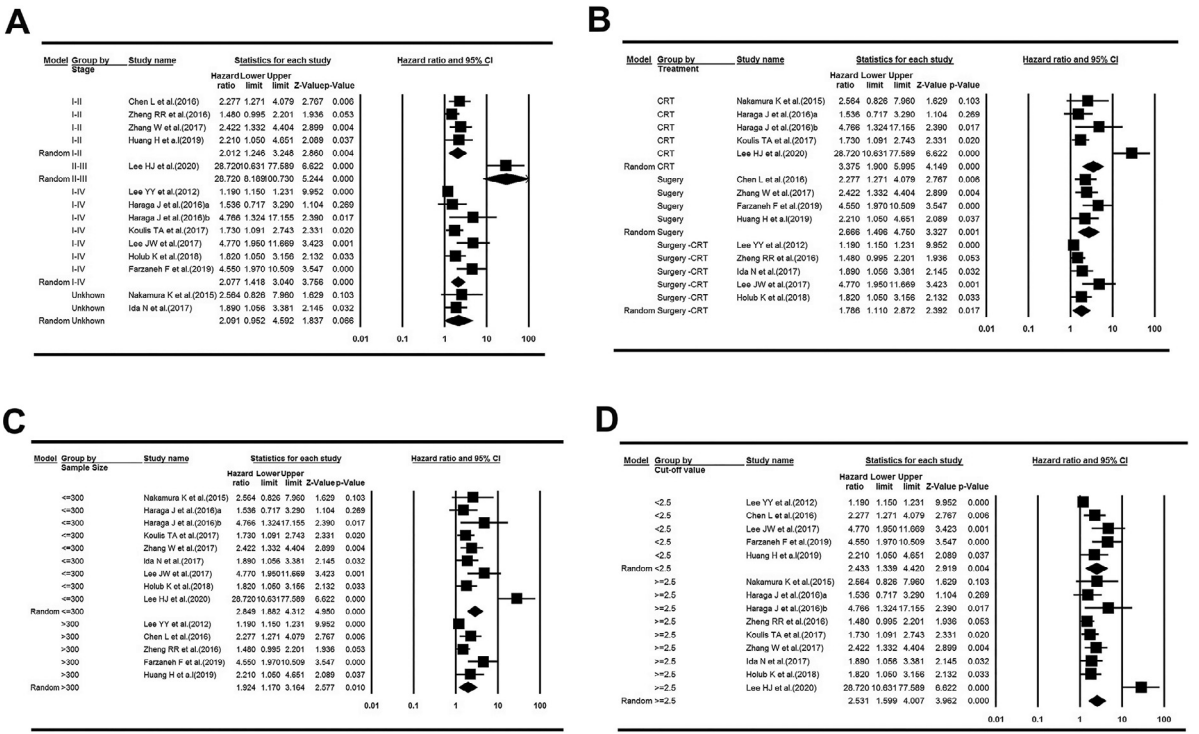

Fig. 2. Subgroup analysis to evaluate the differences in NLR level in patients with cervical cancer based on different stages (A), different therapies (B), sample size (C) and cut-off (D).

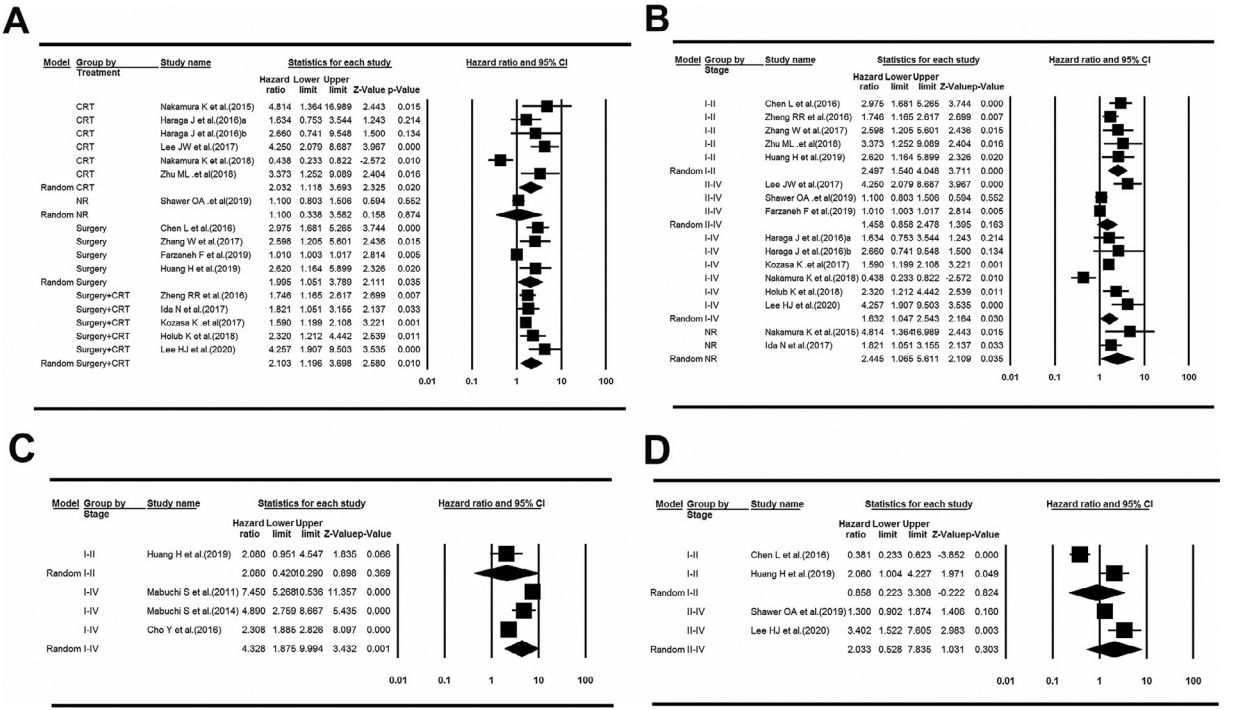

Fig. 3. Forest plot of survival outcomes for the association between serum PLR level and cervical cancer based on different stages (A) and different therapies (B). The forest plots showed that a different stage of cervical cancer was associated with a high level of TLR (C) and CAR (D).

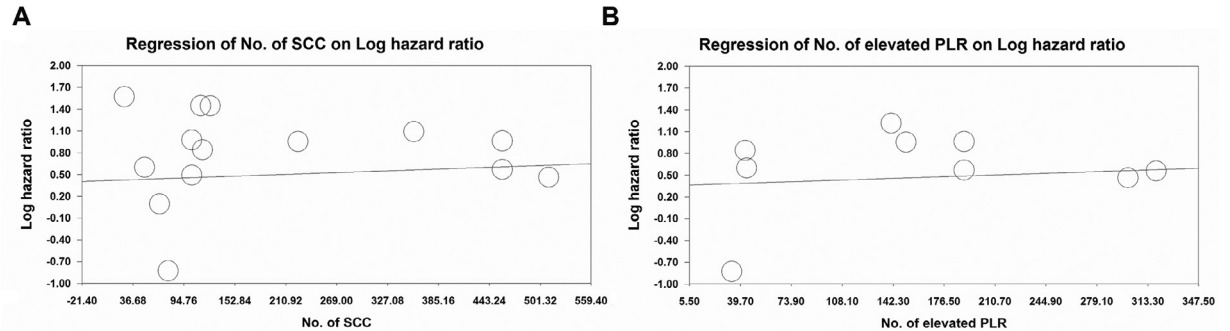

Fig. 4. Meta-regression plot to evaluate the effect of the number of SCC patients (A) and the number of evaluated PLR indices (B) on the risk of cervical collision cancer.

Table 6
Meta regression data analysis of each study.

Author	Country	Duration	Sample size	Age (yrs.)	Cancer Stge*	No. of SCC	Primary treatment	Cut-off value for PLR	No. of elevated PLR (%)	Overall Survival(OS)**				
										Hazard Ratio(HR)	95% CI for HR		NOS***	Log HR
											Lower	Upper		
Zheng. et al. [8]	China	2005–2012	795	49.5	I–II		Surgery -Chemoradiotherapy##	128.3	319	1.746	1.165	2.617	7	0.557
Kozasa. et al. [18]	Japan	1993–2011	684	50	I-IV	511	Surgery -Chemoradiotherapy	125.23	300	1.59	1.2	2.11	8	0.463
Farzaneh. et al. [27]	Iran	2009–2017	307	40.36	CINI-III		Sugery	NA	NA	1.01	1.003	1.017	7	0.009
Shawer. et al. [26]	Jordan	2006–2012	264	56	III-IV	67	NA	0.2	NA	1.1	0.8	1.5	7	0.095
Holub. et al. [25]	Spain	2009–2016	151	51	I-IV	116	Surgery -Chemoradiotherapy	210	43	2.32	1.2	4.4	8	0.841
Chen. et al. [6]	China	2006–2009	407	44	I-II	357	Sugery	152.02	NR	2.975	1.681	5.264	9	1.090
Zhang. et al. [9]	China	2005–2009	235	46	I-II	225	Sugery	176.5	151	2.598	1.205	5.601	8	0.954
Zhu. et al. [29]	China	2012–2014	365	45	I-II		Chemoradiotherapy	143.79	141	3.373	1.252	9.09	7	1.215
Nakamura. et al. [15]	Japan	2005–2014	32	52.6	NR	27	Chemoradiotherapy	322	NA	4.814	1.364	16.988	8	1.571
Haraga. et al. [16]#	Japan	2007–2013	131	61.5	I-IV	104	Chemoradiotherapy	128	NA	1.634	0.753	3.543	7	0.491
Haraga. et al. [16]	Japan	2007–2013	131	61.5	I-IV	104	Chemoradiotherapy	130	NA	2.66	0.741	9.547	7	0.978
Ida. et al. [17]	Japan	2004–2015	79	52.4	NR	50	Surgery -Chemoradiotherapy	260	44	1.821	1.051	3.155	9	0.599
Nakamura. et al. [19]	Japan	1997–2013	98	65	I-IV	77	Chemoradiotherapy	212	34	0.438	0.233	0.82	8	−0.825
Lee. et al. [22]	Korea	2011–2014	145	52	I-IV	125	Surgery -Chemoradiotherapy	170	NA	4.25	2.08	8.69	7	1.446
Lee. et al. [23]	Korea	2005–2016	125	53.67	II-III	114	Chemoradiotherapy	2.235	NA	4.257	1.907	9.504	9	1.448
Huang. et al. [12]#	China	2006–2015	458	45	I-II	458	Surgery	118	190	1.77	1.08	2.91	8	0.570
Huang. et al. [12]	China	2006–2015	458	44	I-II	458	Surgery	118	190	2.62	1.16	5.88	8	0.963

Abbreviations: SCC, squamous cell carcinoma; NA, not avavalible; PLR, platelet-to-lymphocyte ratio; NOS, Newcastle-Ottawa scale.

* Malignant tumors classified according the Federation of Gynecology and Obstetrics (FIGO) stage.

** Random Model of analyzing were used.

*** Quality assessment of the included studies according to the Newcastle-Ottawa Scale (NOS).

This article separately in two independent patient populations, had two HRs.

chemotherapy included the adjuvant chemotherapy and neoadjuvant chemotherapy.

Briefly, in Cochrane Collaboration's tool, each assessment has seven questions that can be answered as "yes", "no", or "unclear". The answer "yes" means that a study's risk bias can be judged as low, whereas "no" and "unclear" mean that the risk of bias can be referred to as high.

2.3. Data analysis

We compared the OS and PFS data from each observational study by expressing the HRs with 95% CIs to evaluate the prognostic values of NLR, PLR, LMR, TRL, and CAR in uterine cervical cancer. In this regard, statistical heterogeneity was quantified using Cochrane's Q statistic and Higgins I^2 statistic. The random-effects model was adopted if obvious heterogeneity was observed ($P<0.05$, $I^2 \geq 50\%$), otherwise the fixed-effects model was used ($P>0.05$, $I^2 \leq 50\%$). Subgroup analysis was performed to investigate the sources of heterogeneity. A two-tailed $P \leq 0.05$ was considered statistically significant. Forest plots showed HRs with 95% CIs in the random-effects model. Furthermore, meta-regression analysis was applied to investigate the factors that determine heterogeneity among included individual studies in the meta-analysis. The findings of meta-regression analysis tried to clear the effects of patient age and presence of SCC in patients on the risk of cervical collision cancer. Meta-regression was weighted by a number of subjects unless specified otherwise. Random-effects meta-regression included serum level data for NLR and PLR, participant age, and patient sample size. All statistical analyses were performed using MetaDiSc version 1.4 and R software (version 4) packages including the "mada" package (The **R** Foundation, Vienna, Austria).

CRediT Author Statement

Xingping Han, Shuya Liu, and **Saber Imani:** Conceptualization, Methodology; **Hossein Hosseinifard** and **Mazaher Maghsoudloo:** Software; **Gang Yang** and **Lisha Yang**: investigation, resources, Data curation; **Saber Imani** and **ShaoZhi Fu**: writing-original draft preparation; **QingLian Wen** and **Saber Imani**: writing-review and editing; **Shuya Liu**: project administration; **Xingping Han**: funding acquisition; **QingLian Wen** and **Qiang Liu**: supervision. All authors have read and agreed to the published version of the manuscript.

Supplementary Materials

Supplementary material associated with this article can be found in the online version at https://data.mendeley.com/datasets/r9ft9txkct/1.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

Acknowledgments

We thankfully acknowledge all authors for their continuous collaborations with us in sharing information. We also gratefully acknowledge all authors and coworkers for their contributions.

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