Supplementary files

Supplement 1. The STROBE checklist for case-control study (version 4).

Supplement 2. The approving letter from the Institutional Ethical Committee (original and translated documents).

Supplement 3. The blood biomarker list.

Supplement 4. The heatmap of all included variables.
Abbreviation: NA, not applicable.

Supplement 5. The results of biomarker difference using the Student *t*-test and the Mann–Whitney *U*-test.

This supplementary file includes supplements 1&2, while supplements 3-5 is difficult to display in the PDF document. These files are available in the Mendeley database with the doi: 10.17632/hb74mbvrg9.2.
Liu, Hanqing (2023), “Supplements for article "Blood profile and thyroid cancer"”, Mendeley Data, V2, doi: 10.17632/hb74mbvrg9.2

STROBE Statement—Checklist of items that should be included in reports of ***case-control studies***

Item	Item No	Recommendation	Location
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Title
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Abstract
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Section 1. Paragraph 1-4
Objectives	3	State specific objectives, including any prespecified hypotheses	Section 1. Paragraph 5
Methods			
Study design	4	Present key elements of study design early in the paper	Section 2.1 Paragraph 1
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Section 2.1 Paragraph 2
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	Section 2.1 Paragraph 2
		(*b*) For matched studies, give matching criteria and the number of controls per case	Section 2.1 Paragraph 2
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Section 2.1 & 2.2
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Section 2.2
Bias	9	Describe any efforts to address potential sources of bias	Section 2.1
Study size	10	Explain how the study size was arrived at	Section 2.1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Section 2.3
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Section 2.3
		(*b*) Describe any methods used to examine subgroups and interactions	Section 2.3
		(*c*) Explain how missing data were addressed	Section 2.3
		(*d*) If applicable, explain how matching of cases and controls was addressed	Section 2.3

		(*e*) Describe any sensitivity analyses	n.a.
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Section 3.1 paragraph 1
		(b) Give reasons for non-participation at each stage	Section 3.1 paragraph 1
		(c) Consider use of a flow diagram	Figure 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Section 3.1 paragraph 2-3
		(b) Indicate number of participants with missing data for each variable of interest	n.a.
Outcome data	15*	Report numbers in each exposure category, or summary measures of exposure	Section 3.2
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Section 3.2-3.4
		(*b*) Report category boundaries when continuous variables were categorized	Section 3.4
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n.a.
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Section 3.4
Discussion			
Key results	18	Summarise key results with reference to study objectives	Section 4. Paragraph 1
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Section 4. Paragraph 7
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Section 4. Paragraph 7
Generalisability	21	Discuss the generalisability (external validity) of the study results	Section 4. Paragraph 7
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Funding

*Give information separately for cases and controls.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at http://www.strobe-statement.org.

伦理审查同意函

伦审号	WDRY2021-K032	项目类型	科研
项目名称	临床资料合并病理特征预测及鉴别难治性甲状腺癌		
申办者	武汉大学人民医院（研究者自发）		
主要研究者	陈创	承担学科	乳腺甲状腺外科
审查类别	☑初始审查 ☐复审 ☐跟踪审查		
审查方式	☐会议审查 ☐紧急会议审查 ☑快速审查		
审查文件	1. 科研项目伦理审查申请表 2. 非注册类临床研究项目受理表 3. 学术评议意见表 4. 非注册类临床研究立项申请表 5. 项目负责人简历及培训证书 6. 临床试验方案（版本号：V1.0；日期：2020-01-05） 7. 知情同意豁免申请书 8. 受试者信息采集表 9. 无经费资助声明 10. 科研项目伦理审查申请表修正对比表 11. 科研项目伦理审查申请表 12. 研究方案修正对比表 13. 研究方案（版本号：V2.0；日期：2021-03-19）		

伦理委员会审评意见

同意按照研究方案（版本号：V2.0；日期：2021-03-19）进行临床研究，并请按照病理科相关规定办理科研项目申请使用病理切片的相关手续。

年度/定期跟踪审查频率	12 个月	截止日期	2022-03-26
主任委员/副主任委员签名		日 期	2021.3.26

武汉大学人民医院临床研究伦理委员会（盖章）

注意：（请仔细阅读）

1. 研究者应遵循伦理委员会批准的方案执行，实施过程应符合 NMPA/GCP 和赫尔辛基宣言的原则。
2. 在试验实施过程中，对研究方案和知情同意书等相关文件所作的任何修改，均需得到伦理委员会审查同意后方可实施。
3. 发生严重不良事件及可能影响风险受益比的任何事件和新信息须及时报告本院伦理委员会。
4. 接受伦理委员会持续审查的项目，请在到期前 1 个月（无论试验开始与否）提出再次审查的申请。
5. 如有违背/偏离方案或暂停/提前终止的试验项目，应及时以书面文件报告本院伦理委员会；临床试验结束后，须及时向伦理委员会提交结题报告。
6. 同意函有效期 1 年（自批准之日起），如试验逾期未实施即自行废止。

Approving Letter of Ethical Review

Ethic No.	WDRY2021-K032	Type	Research
Title	Discrimination and Prognosis of Radioiodine Refractory Thyroid Cancer with Clinical and Pathological Characteristics.		
Applicant	Renmin Hospital of Wuhan University (Independent Program)		
Principal Investigator	Chen Chuang	Department	Department of Thyroid and Breast Surgery
Type of Review	☑Primary review ☐Re-review ☐Following up review		
Mode of Review	☐ Meeting review ☐Emergency meeting review ☑Rapid review		
Documents for Review	1. Application Form for Ethical Review of Scientific Research Projects 2. Acceptance Form for Non-registered Clinical Research Projects (Receiving Form) 3. Academic Review Comment Form 4. Application Form for Non-registered Clinical Research Projects (Applying Form) 5. Resume of the Principal Investigator 6. Clinical Research Protocol (Version No.: V1.0; Date: January 5, 2021) 7. Application Letter for Informed Consent Exemption 8. Collection Form of Subject Information 9. No Funding Statement 10. Modification and Comparison Form of Application Form for Ethical Review of Scientific Research Projects 11. Application Form for Ethical Review of Scientific Research Projects 12. Modification and Comparison Form of Clinical Research Protocol 13. Clinical Research Protocol (Version No.: V2.0; Date: March 19, 2021)		

Review Opinions from Ethical Committee

Approved to conduct the clinical research with follow the clinical research protocol (Version No.: V2.0; Date: March 19, 2021). Please apply for the use of pathological sections for scientific research in accordance with the relevant regulations of the Department of Pathology.

Frequency of Annual/Periodical Tracking Review	12 Months	Deadline	March 26, 2022
Signature of Chairman or Vice Chairman	Chen Hong (Signature)	Date	March 26, 2021

Independent Ethics Committee of Renmin Hospital of Wuhan University (Seal)

Notes: (Please read carefully)

1. The investigator shall follow the protocol approved by the Ethics Committee. And the implementation shall be in accordance with the principles of the NMPA/GCP and the Helsinki Declaration.
2. During the implementation, modifications to the research protocol, informed consent or other relevant documents shall be conducted after the approval of the Ethics Committee.
3. Any serious adverse events or any new information that may affect the risk-benefit ratio shall be reported to the Ethics Committee in time.
4. If a project intends to prolong its time limit, an application of re-review should be submitted a month before deadline (regardless of whether the research is started or not).
5. Any violation/deviation from the protocol or any suspension/early termination of the project should be reported to the Ethics Committee in time via a written document. The final report must be submitted to the Ethics Committee in time upon completion of the clinical research.
6. The Approving Letter is valid for one year (from the date of approval). Whether the research is carried out within the time limit or not, the letter will be abolished automatically.

Address: No. 99, Zhangzhidong Road, Wuchang District, Wuhan. Postal Code: 430060 Tel: 027-88041911-81353

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