International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Accuracy of Infrared ear thermometry in adults: a systematic review

INPLASY202420080

doi: 10.37766/inplasy2024.2.0080

Received: 19 February 2024

Published: 19 February 2024

Corresponding author:
cao mingying

254324844@qq.com

Author Affiliation:
chongqing traditional chinese medicine hospital.

Cao, MY[1]; Liang, M[2]; Liang, P[3]; Zhang, ZQ[4]; Bi, YM[5].

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202420080

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 February 2024 and was last updated on 19 February 2024.

INTRODUCTION

Review question / Objective Our aim is to determine whether infrared ear thermometry is accurate and whether it can replace oral thermometry in clinical practice of adults.

Condition being studied Fever is a common symptom in clinical patients, and the correct identification of fever is of great significance for clinical diagnosis and disease treatment. To judge whether a patient has a fever needs accurate, quick and sensitive temperature measuring tools, and the ear temperature gun is widely used because of its advantages of convenient operation, safe and fast, and can effectively avoid cross-infection. Infrared ear thermometer is an alternative tool commonly used to measure body temperature. Its basic principle is a radiation detector that can receive the infrared region of the electromagnetic spectrum emitted by the human body. Compared with traditional temperature measurement methods, the infrared ear temperature method is easy to use, measures quickly, safely, and has no mucosal contact, which can reduce reduce related infection. However, the accuracy of infrared ear thermometer measurement is still a major question, and there is no systematic analysis of the accuracy of infrared ear thermometer by researchers in measuring body temperature in adults. Therefore, the systematic Meta-analysis of the measurement accuracy of ear temperature and reference temperature in adults can provide a reference basis for the use of ear temperature in clinical practice and the promotion of infrared ear thermometer.

METHODS

Participant or population Adults.

Intervention Temperature measured at the oral (the test site)using mercury, electronic, or indwelling probe thermometers.

Comparator Temperature measured at the ear (the test site) using infrared ear thermometers.

Study designs to be included Cross-sectional, prospective design.

Eligibility criteria Inclusion criteria：1.Data for the mean deviations and standard deviations are provided；2.The operation method description is specific；3.Comparison of ear temperature and oral temperature. Exclusion criteria：1.Non-human studies；2.Literature languages is neither English nor Chinese.

Information sources We will search Cochrane Library, pubmed, embase, Chinses National Knowledge Infrastructure(CNKI),Wanfang database, Vipp database, Chinese biomedical literature database.

Main outcome(s) The agreement between ear temperature and oral temperature(incaluding normal and fever).

Quality assessment / Risk of bias analysis Two reviewers each selected eligible studies. The studies were then appraised independently for methodological quality by the quality of the included literature was evaluated according to the modified Jadad score, which was classified as low quality from 1 to 3 and high quality from 4 to 7.

Strategy of data synthesis Statistical analysis was performed using the Rev Man 5.2 software. First, the extraction results of each screened literature were tested for heterogeneity, using the Q test of joint qualitative test and the P test of quantitative test, and the Q test with P 0.1 and I 2 <40%, a fixed effect model was used; otherwise, a random effect model was used . The weighted mean difference (WMD) was used as the effect index, and the 95%CI represents the size of the pooled effect.

Subgroup analysis We will divide the normal body temperature group and the fever group for subgroup analysis.

Sensitivity analysis Sensitivity analyses will be performed by sequential exclusion in order to assess the liability of study results.

Language restriction English and Chinese.

Country(ies) involved China.

Keywords infrared ear thermometry; adults; meta-analysis; oral thermometry;systematic review.

Contributions of each author

Author 1 - cao mingying.
Email: 254324844@qq.com
Author 2 - liang man.
Author 3 - liang ping.
Author 4 - zhang ziqi.
Author 5 - bi yumiao.