The utility of blood cultures in the management of non-facial cellulitis appears to be low

Stevenson A, Hider P, Than M

CRD summary
This review evaluated the utility of blood cultures in the management of patients presenting to the Emergency Department with non-facial cellulitis. It concluded that blood cultures are rarely positive and evidence does not support their routine use. Overall, the limited reporting and possible methodological limitations make it difficult to assess the data, but the authors’ cautious conclusions appear reasonable.

Authors’ objectives
To evaluate the utility of blood cultures in the management of patients presenting from the community to the Emergency Department with non-facial cellulitis.

Searching
MEDLINE, PubMed, EMBASE, the Cochrane Database of Systematic Reviews and the Cochrane CENTRAL Register were searched up to October 2003. In addition, International Pharmaceutical Abstracts, Best Evidence ACP Journal Club, references of selected articles, relevant internet sites and websites of professional organisations were searched. Expert opinion articles were also assessed. Only studies written in English were eligible.

Study selection
Study designs of evaluations included in the review
Studies with 10 or more participants were eligible for inclusion.

Specific interventions included in the review
Studies evaluating the effects of positive or negative blood cultures on clinical management were eligible for inclusion. The included studies varied in their settings, but the majority were conducted in university or teaching hospitals.

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Studies of healthy patients with suspected cellulitis or soft tissue infection were eligible; patients with facial cellulitis were excluded. The proportion of positive blood cultures in the included studies varied between 0.8% and 18.7%.

Outcomes assessed in the review
Studies had to report the length of hospital stay, choice and duration of antibiotic treatment, complications of cellulitis or morbidity.

How were decisions on the relevance of primary studies made?
It was unclear how decisions on the relevance of the primary studies were made. However, the authors stated that the results of the literature search were reviewed by a team of reviewers.

Assessment of study quality
Studies were assessed against the following criteria: a prospective study design, appropriateness of the selection of identified cases, and the reporting and adequateness of duration and completeness of follow-up. The studies were graded as ideal, acceptable or unacceptable. The authors did not state how the validity assessment was performed.
Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

The review reported the study conclusions, whether the blood cultures affected patient management and the proportion of positive cultures.

Methods of synthesis
How were the studies combined?
The studies were summarised in a narrative review and presented in tabular format.

How were differences between studies investigated?
Some differences between the studies were apparent from the table; selected differences were mentioned in the text.

Results of the review
Seventeen studies (n>3,316; exact number unclear) were included, all were retrospective reviews or case series.

The studies were not well designed or clearly reported and only one paper met all of the quality criteria.

The largest study reported that only 2% of cultures were positive and the findings did not significantly affect patient management. A second study reported a positive culture rate of 5%, but only one result (in an immunocompromised patient) led to a change in patient management. The remaining studies concluded that blood cultures were unnecessary, had no significant impact on patient management, or provided insufficient data.

Authors’ conclusions
In patients presenting from the community with non-facial cellulitis, blood cultures are rarely positive. Initial empiric therapy is generally adequate to treat bacterial infections. The evidence does not support routine use of blood cultures in healthy adults.

CRD commentary
The research question and inclusion criteria were in general clearly defined, although the criteria relating to study design were broad. The search covered a number of databases and sources of unpublished studies, thereby reducing the risk of publication bias. However, only studies reported in English were eligible for inclusion, thus increasing the risk of language bias. The review methods were not reported clearly and it was unclear whether appropriate steps were taken to reduce the risk of error and bias during the study selection, data extraction and quality assessment processes.

The included studies were not presented in great detail, which makes it hard to evaluate the evidence base. The studies were assessed for quality and quality was taken into account in the data synthesis. The synthesis concentrated on five directly relevant studies; the other included studies were not addressed. Overall, the limited reporting and possible methodological limitations make it difficult to assess the review data, but the authors’ cautious conclusions appear reasonable.

Implications of the review for practice and research
The authors did not state any implications for practice or further research.

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