**Supplementary Appendix**

Supplement to: Necroptosis and viral myocarditis: tumor necrosis factor α as a novel biomarker for the diagnosis of viral myocarditis

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# Meta-analysis on the relationship between serum TNF-alpha and viral myocarditis

## Search strategy

### PubMed search strategy

Pubmed was searched on 23/10/21 without language limitation.

1. (“Tumor Necrosis Factor alpha” [tiab] OR “Cachectin” [tiab] OR “Cachectin-Tumor Necrosis Factor” [tiab] OR “Cachectin Tumor Necrosis Factor” [tiab] OR “Tumor Necrosis Factor Ligand Superfamily Member 2” [tiab] OR “Tumor Necrosis Factor” [tiab] OR “TNF Superfamily, Member 2” [tiab] OR “TNFalpha” [tiab] OR “TNF-alpha” [tiab] OR “TNFα” [tiab] OR “TNF-α” [tiab] OR“TNF” [tiab])
2. (“viral myocarditis” [tiab] OR "Myocarditides"[tiab] OR "myocarditis"[tiab])
3. #1 AND #2

Key: tiab= title or abstract

Result 126

### Embases search strategy

The database of web of science was searched on 20/09/21 without language limitation.

TS = 1 (“Tumor Necrosis Factor alpha” OR “Cachectin” OR “Cachectin-Tumor Necrosis Factor” OR “Cachectin Tumor Necrosis Factor” OR “Tumor Necrosis Factor Ligand Superfamily Member 2” OR “Tumor Necrosis Factor” OR “TNF Superfamily, Member 2” OR “TNFalpha” OR “TNF-alpha” OR “TNFα” OR “TNF-α” OR “TNF” ) AND (“viral myocarditis” OR "Myocarditides" OR "myocarditis")

Key: TS= topic, abstract, keyword

Result 112

### Cochrane Library search strategy

Cochrane Library was searched on 23/09/21 without language limitation.

|  |  |  |
| --- | --- | --- |
| Search | Query | Results |
| #1 | "myocarditis".ti,ab,kw. | 1,204 |
| #2 | "Myocarditides".ti,ab,kw. | 0 |
| #3 | "Carditis".ti,ab,kw. | 45 |
| #4 | 1 OR 2 OR 3 | 1,244 |
| #5 | "Tumor Necrosis Factor-alpha".ti,ab,kw. | 4,706 |
| #6 | "Cachectin".ti,ab,kw. | 5 |
| #7 | "Cachectin Tumor Necrosis Factor".ti,ab,kw. | 3 |
| #8 | "Tumor Necrosis Factor".ti,ab,kw. | 8,631 |
| #9 | "TNFalpha".ti,ab,kw. | 1,573 |
| #10 | "TNF-alpha".ti,ab,kw. | 7,682 |
| #11 | "TNF-α".ti,ab,kw. | 13,398 |
| #12 | "TNFα".ti,ab,kw. | 13,398 |
| #13 | 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 | 17,856 |
| #14 | 4 AND 13 | 3 |

ti = title, ab = abstract, kw = keyword.

### Scopus search strategy

|  |  |  |
| --- | --- | --- |
| Search | Query | Results |
| #1 | "myocarditis" | 16,744 |
| #2 | "Myocarditides" | 12 |
| #3 | "Carditis" | 1,231 |
| #4 | #1 OR #2 OR #3 | 17,844 |
| #5 | "Tumor Necrosis Factor-alpha" | 76,186 |
| #6 | "Cachectin" | 2,497 |
| #7 | "Cachectin Tumor Necrosis Factor" | 69 |
| #8 | "Tumor Necrosis Factor" | 182,176 |
| #9 | "TNFalpha" | 3,460 |
| #10 | "TNF-alpha" | 177,932 |
| #11 | "TNF-α" | 0 |
| #12 | "TNFα" | 0 |
| #13 | #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 | 284,736 |
| #14 | #4 AND #13 | 290 |

### Science Direct search strategy

The database of Science Direct was searched on 30/08/21 without language limitation.

|  |  |  |
| --- | --- | --- |
| Search | Query | Results |
| #1 | ("myocarditis" OR "Myocarditides" OR "Carditis") AND ("Tumor Necrosis Factor-alpha" OR "Cachectin" OR "Tumor Necrosis Factor" OR "TNFalpha" OR "TNF-alpha") | 10 |

### CNKI search strategy

The database of Medline was searched on 30/08/21 without language limitation.

|  |  |  |
| --- | --- | --- |
| Search | Query | Results |
| #1 | Key word:肿瘤坏死因子 (TNF) AND Key word:心肌炎 (myocarditis) | 179 |

## Supplementary figures

## Figure 1 Flow diagram of literature selection



## Figure 2 Risk of bias of the 65 included studies (red: high; yellow: unclear; green: low)



## Figure 3 Forest plot of pooled serum TNF-α between viral myocarditis and control



## Figure 4 Subgroup analysis of pooled serum TNF-α between viral myocarditis and control



## Figure 5 Forest plot of pooled serum TNF-α between viral myocarditis in acute and recovery stage



## Figure 6 Forest plot of pooled serum TNF-α between viral myocarditis in recovery stage and control



## Figure 7 Diagnostic accuracy of serum TNF-α in diagnosis viral myocarditis



## Figure 8 SORC for the diagnostic accuracy of serum TNF-α in diagnosis viral myocarditis



## Included studies

**1-61**

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