Using GRADE to develop an evidence-based benchmark for patient safety indicators: postoperative venous thromboembolism

Bernard Burnand, Jean-Marie Januel
Institute of social and preventive medicine (IUMSP) and Cochrane Switzerland, Lausanne University Hospital, Switzerland

Rationale

- Evidence-based benchmarks may help appraise the actual value of a quality indicator
- The GRADE system may help assess the quality of evidence for such benchmarks
- However, GRADE is currently tailored to examine comparative designs

Objectives

- To adapt the GRADE methodology for a rate or a proportion in the framework of a systematic review aimed at developing a benchmark for in-hospital symptomatic venous thromboembolism (VTE) in patients who had hip (TPHA) or knee (TPKA) arthroplasty

Methods

- Evaluation of each component of GRADE to assess its suitability to appraise the evidence for a rate or a proportion.
- In this case study, we included randomized clinical trials (RCT) testing efficacious VTE prophylaxis and observational studies of patients receiving VTE prophylaxis. Symptomatic post-operative VTE (pulmonary embolism or deep vein thrombosis) that occurred before hospital discharge following TPHA or TPKA was the outcome.
- Two independent evaluation (BB and JMJ) of GRADE items (Table 1) were performed. Such evaluation has compared, discussed and conciliated of the two lists allowed its use in the systematic review.
- Ad hoc criteria to rate the quality of evidence were defined.

Results

- We considered GRADE elements about study design, outcome assessment, and sources of potential biases at study level and at sub-group of study level. At sub-group level criteria for evaluation are presented in Table 1.
- We summarized the quality assessment of the included studies in five categories: consistency, imprecision, generalizability to the population of interest, publication bias and other limitations (allocation concealment, blinding, potential measurement bias), as exemplified for TPHA in Table 2.
- The individual sub-group and pooled estimates showed consistency, but large confidence intervals indicated lack of precision.
- A potential measurement bias was present in <13% of RCT and between 67% and 75% of observational studies.
- Indirectness of evidence varied largely between subgroups (80 to 93%).

Conclusion

- We propose a tentative adaptation of the GRADE system for a rate or proportion that should be further developed and assessed by the GRADE working group.
- This adaptation of the GRADE system for evaluating the quality of the evidence supporting a quality benchmark, expressed as rate or a proportion was influenced by the type of evidence available, mostly RCT in this case, which may not always be the case when developing evidence-based benchmarks for quality indicators.

References

1. GRADE Working Group. www.gradeworkinggroup.org