REFERENCES

1. Clarke CA, Donohoe WTA, Finn R, Lehane D, McConnell RB, Sheppard PM, et al. Prevention of Rh-haemolytic disease: final results of the 'high-risk' clinical trial. A combined study from centres in England and Baltimore. Br Med J 1971;2:607-9.
2. National Health and Medical Research Council. Guidelines on the prophylactic use of Rh D immunoglobulin (Anti-D) in obstetrics. 1999. http://www.nhmrc.health.gov.au/publicat/wh-home.htm

Self-test questions

The following statements are either true or false (answers on page 47)

5. First trimester abortion is no longer an indication for giving anti-D to a Rhesus negative woman.
6. Rhesus immunoglobulin should be given within 72 hours of a sensitising event.

Prescribing by numbers

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The results of clinical studies are often presented in terms of the relative risk reduction achieved with an active treatment over a control. The relative risk reduction is usually expressed as a percentage and can appear impressive but, as it is isolated from the underlying incidence of the event being prevented, it has little value in the clinical situation.

Absolute risk reduction is the difference in event rates between active and control groups, but it can be difficult to visualise its clinical relevance. The reciprocal of the absolute risk reduction gives the number of patients who need to be treated to prevent one event. This is the **number needed to treat** and is a more useful measure which can be used to compare a range of interventions.[1]

Calculations

$$\text{Event rate} = \frac{\text{events in group}}{\text{number of subjects in group}}$$

$$\text{Relative risk reduction \%} = \left(\frac{\text{event rate control} - \text{event rate active}}{\text{event rate control}}\right) \times 100$$

$$\text{Absolute risk reduction} = \text{event rate control} - \text{event rate active}$$

$$\text{Number needed to treat to prevent one event} = \frac{1}{\text{absolute risk reduction}}$$

The results of the Helsinki heart study[2] (see box) were generally presented as a reduction of 34% in the incidence of coronary heart disease with gemfibrozil treatment.

Expressing results as the number of patients who need to be treated to prevent one event (or for one patient to benefit) is much more meaningful. It can be useful when discussing treatment options with patients.

Example

Helsinki heart study

Subjects: 4081 asymptomatic men aged 40–55 with dyslipidaemia (total cholesterol minus HDL ≥5.2 mmol/L).

Treatment: gemfibrozil 600 mg twice daily (2051 men) or matched placebo (2030 men) in a five year randomised double-blind study.

Results: number of events (fatal, non-fatal myocardial infarction or cardiac death)
gemfibrozil – 56 events, placebo – 84 events.

Calculations

Event rate placebo = $\frac{84}{2030}$ = 0.041 (4.1%)

Event rate active = $\frac{56}{2051}$ = 0.027 (2.7%)

Relative risk reduction % = $\frac{0.014}{0.041} \times 100$ = 34%

Absolute risk reduction = 0.041 – 0.027 = 0.014 (1.4%)

Number needed to treat for five years to prevent one event = $\frac{1}{0.014}$ = 71 men

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2. Frick MH, Elo O, Haapa K, Heinonen OP, Heinsalmi P, Helo P, et al. Helsinki Heart Study: primary-prevention trial with gemfibrozil in middle-aged men with dyslipidemia. N Engl J Med 1987;317:1237-45.