**Task 1**

A randomized controlled trial was conducted to assess the risk of side effects from the gastrointestinal tract when using azithromycin compared with erythromycin in the treatment of pertussis in children. Of the 100 children with pertussisinvolved, 50 received azithromycin, and 50 received erythromycin. The study found that treatment led to vomiting in 5 patients in the azithromycin group and in 15 patients in the erythromycin group.

***The task.*** Build a contingency table and calculate the rate of decrease in the absolute risk of vomiting in patients of the azithromycin group. Draw a conclusion.

**Solution to Problem 1**

**Contingency table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Groups** | **Vomiting symptoms, effect** | | **Total** |
| **presence**  **(+)** | **absence**  **(-)** |
| exposed to azithromycin | **5** | **45** | **50** |
| exposed to erythromycin | **15** | **35** | **50** |
| **Total** | **20** | **80** | **100** |

Rate of decrease in the absolute risk of vomiting in patients of the azithromycin group is given by

= (15/50 – 5/50) x 100 = 20%

**Conclusion:**

For children with pertussis, only 20% show the symptoms of vomiting when treated with azithromycin or erythromycin. Out of the vomiting patients, azithromycin is likely to reduce vomitting by 20% as compared to erythromycin.

**Task 2**

A study was conducted in which 100 patients with type 2 diabetes mellitus (type 2 diabetes) received glipizide (group A), and another 100 patients with type 2 diabetes received standard therapy (group B).

Researchers have determined how effective glipizide is in preventing diabetic neuropathy. Over a 5-year period, the Alc hemoglobin level was determined monthly and a diabetic foot was examined.

At the end of the study, using the filament test, we determined the number of people in group A and group B who developed signs of diabetic neuropathy. The results are shown in the table:

|  |  |  |  |
| --- | --- | --- | --- |
| Groups | Diabetic neuropathy detected | No diabetic neuropathy | Total |
| Patients receiving glipizide (group A) | 50 | 50 | 100 |
| Patients receiving standard therapy (group B) | 70 | 30 | 100 |
| Total | 120 | 80 | 200 |

**Question**. How many patients with type 2 diabetes should be treated with glipizide to prevent one case of diabetic neuropathy?

Calculate:

ATS (absolute risk reduction)

NNT (number of patients to be treated)

Analyze the result and draw a conclusion

**Solution to Problem 2**

Absolue risk reduction

= (70/100 – 50/100) x 100 = 20%

Number of patients to be treated (NNT)

= 1/0.2 = 5

**Conclusion:**

The type 2 diabetic patients treated with glipizide helps in reducing risk by 20%. Further, 5 patients with type 2 diabetes should be treated with glipizide to prevent one case of diabetic neuropathy.