

Can prophylactic antibiotics for aspiration improve stroke outcomes? The PANTHERIS trial

Pages with reference to book, From 27 To 27

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Why is this important?

Early mortality after ischaemic stroke is attributed largely to stroke associated pneumonia and is reported to be somewhere between 7-22%. Although some patients are at a higher risk of pneumonia following stroke including those within the acute phase (9-36 hours.) and those with non-lacunar stroke in the MCA territory. There is yet no evidence on the outcome of acute stroke if prophylactic antibiotic therapy is given to prevent aspiration pneumonia in high risk patients although some animal studies have suggested benefits of the same. The Preventive Antibacterial Therapy in Acute Ischaemic Stroke (PANTHERIS) trial was done between May 2003 and July 2006 to observe the difference in outcome of acute stroke if prophylactic antibiotic therapy was given.

Who were the participants?

This multicenter randomized double blind placebo controlled trial was conducted on high risk acute stroke patients in Germany. There were 40 patients in each arm of the study whereas 1 participant withdrew from the treatment arm. The treatment arm was given 400mg Moxifloxacin daily IV for 5 days while the placebo arm was given Riboflavin IV for 5 days. The participants were eligible if they had an acute (9-36 hours.) stroke in the MCA territory with NIHSS (National Institute of Health Stroke Scale) score of >12 and were adults (>18 years).

What were the outcomes?

By intention-to-treat analysis 15% were in the treatment group vs. 32% of the placebo group (p=0.11). Treatment with Moxifloxacin led to a relative risk reduction of 46% in the intention-to-treat group vs. 59% in the per protocol analyses. On an average pneumonia was diagnosed at 4.7±2.5 days after stroke. There was no difference in the requirement of mechanical ventilation within the two groups. CRP levels in patients of the placebo group were significantly higher than in those of the treatment group. Survival did not vary significantly among the two groups by intention-to-treat analysis although the cumulative survival was significantly lower among those patients with infections vs. those without any infection. There was no significant difference in the neurological outcome at 6 months assessed via the Barthel Index. There was no significant difference in the incidence of adverse events among the two groups.

What were the conclusions?

This trial confirms the poor outcome associated with infections after acute non-lacunar MCA stroke. Although the trial did not demonstrate any advantage of prophylactic antibiotic therapy for aspiration pneumonia regarding outcome or survival at 6 months, it does demonstrate the fact that infections post-stroke are a marker of poor outcome.

What does this mean for clinicians practicing in Pakistan?

In a country with limited resources, poor antibiotic restriction policies among health professionals and increased rates and susceptibility to infections among stroke patients, this trial brings evidence to limit the use of prophylactic antibiotics in acute stroke patients. Although general measures to reduce the incidence of infection including nutrition, aspiration prophylaxis measures and early rehabilitation may be better and cost effective methods for prevention of aspiration pneumonia.

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Suggested Reading

1. Preventive Antibacterial Therapy in Acute Ischemic Stroke: A Randomized Controlled Trial. Hendrik Harms, Konstantin Prass, Christian Meisel, Juliane Klehmet Witold Rogge, Christoph Drenckhahn, Jos Göhler, Stefan Bereswill, Ulf Göbel, Klaus Dieter Wernecke, Tilo Wolf, Guy Arnold, Elke Halle, Hans-Dieter Volk, Ulrich Dirnagl, and Andreas Meisel, PLoS ONE 2008; 3: e2158.