Introduction:
Patients treated with mild therapeutic hypothermia after cardiac arrests with shockable rhythm are at high risk of ventilator-associated pneumonia (VAP) [1]. Despite retrospective trials suggesting a benefit of short-term (48h) antibiotics in this setting [2], it is not recommended. The primary objective was to demonstrate that systematic antibiotic prophylaxis can reduce incidence of early VAP (<7 days). The impact on incidence of late VAP and on Day 28 mortality was also assessed.

Methods:
Multicenter, placebo-controlled, double-blinded, randomized trial. ICU patients >18 years, mechanically ventilated after out-of-hospital resuscitated cardiac arrest related to initial shockable rhythm and treated with mild therapeutic hypothermia were included. Moribund patients and those requiring extracorporeal life supports, with ongoing antibiotic therapy, known chronic colonization with multiresistant bacteria or known allergy to beta-lactam antibiotics were excluded. Either IV injection of amoxicillin-clavulanic acid (1g/200mg) or placebo was administered 3 times a day for 2 days. All pulmonary infections were recorded and blindly confirmed by an adjudication committee.

Results:
In intention to treat analysis, 196 patients were analyzed, (treatment group n=99; mean age 60.5±14.4 years, sex ratio=4, SOFA score 8.7±3.1). Global characteristics of cardiac arrest were similar (no flow= 3.5min vs 3.8min, low-flow= 21.8min vs 18.2min). 60 VAP were confirmed incl. 51 early VAP, 19 in treatment group vs 32 in placebo group (HR=0.546; IC 95%=[0.315; 0.946]) (Figure). Occurrence of late VAP (4% vs 5.1%) and Day 28 mortality (41.4% vs 37.5%) was not affected by the study procedure.

Conclusion:
Short-term antibiotic prophylaxis significantly decreases incidence of early VAP in patients treated with mild therapeutic hypothermia after out-of-hospital cardiac arrest related to shockable rhythm and should be recommended.

References:

Image 1:

![Graph showing Incidence of early VAP](image-url)

**Incidence of early VAP**