

Outcomes of *Acinetobacter*-related hospital acquired infection (AR-HAI)

A critical issue in critical illness

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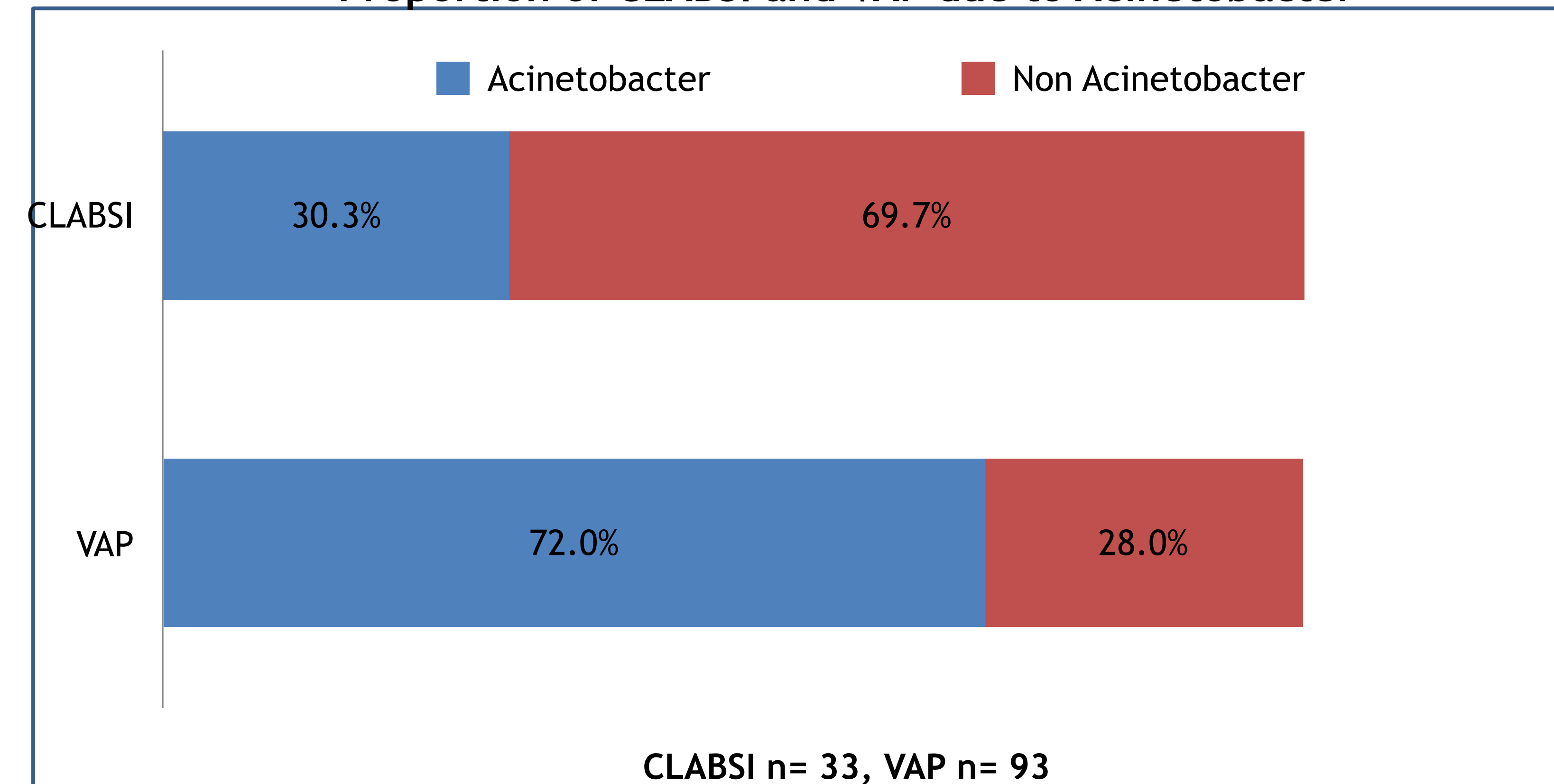
BACKGROUND

- Acinetobacter* is an important cause of hospital acquired infections (HAI) worldwide.
- We compared the clinical outcomes of ventilator associated pneumonia (VAP) and central-line related blood stream infections (CLABSI) caused by *Acinetobacter* spp. with VAP and CLABSI caused by other bacterial pathogens.
- Prior studies on the mortality due to AR-HAI have shown conflicting results.

METHODS

- Study methodology: Prospective cohort study
- Setting : 2500-bed tertiary care teaching hospital in southern India from January 2013 to June 2014.
- Patients:
 - >adult (age >18 years) patients admitted to the intensive care units (ICUs)
 - >who developed new onset fever ≥ 48 hours after admission to the ICU, and fulfilled criteria for VAP or CLABSI
- All patients were followed up until death or discharge from the hospital
- Outcomes:
 - >primary outcome was death
 - >secondary outcome was ventilator-free days to day 28
 - >outcomes were compared between HAI caused by *Acinetobacter* spp. and by other bacteria.
- Case definitions:
 - >patient was diagnosed to have a VAP using the following criteria:
 - Clinical Pulmonary Infection Score (CPIS) ≥ 6 on the day of new onset fever or a change of CPIS score from < 6 to ≥ 6 within 72 hours after onset of fever
 - Endotracheal aspirate culture growing compatible organism and
 - No other focus of infection
 - > CLABSI was diagnosed based on the National Healthcare Safety Network criteria (1)

Proportion of CLABSI and VAP due to *Acinetobacter*



PRIMARY OUTCOME- Death during hospital stay

Risk Variables	Unadjusted				Adjusted			
	Outcomes				P value	OR	95%CI	P value
	Death		Discharge					
N	%	N	%					
HAI etiology: AR-HAI	44	57.1	33	42.9	0.07	3.06	0.92-4.35	0.08
NAR-HAI	20	40.8	29	59.2				
Admission diagnosis: Infection/ Poisoning	29	40.8	42	59.2	0.01	5.9	1.2-5.8	0.01
Surgical/ Neoplastic /others	35	63.6	20	36.4				
Age (mean \pm SD)	46.4 \pm 17		42.6 \pm 17		0.21			
APACHE III score (mean \pm SD)	73.3 \pm 28.4		63.1 \pm 30.3		0.05	2.7	0.98-1.02	0.09
Duration of ICU stay (median, IQR)	18(13-31)		17.5 (11-25)		0.18			
Duration of hospital stay (median, IQR)	19(13-40)		31 (21-46)		0.02			
Device day at the time of HAI (median, IQR)	6.5(4-9)		7(5-10)		0.48			
Procalcitonin (median, IQR)	3.2(0.9-11.2)		2.8(0.9-10.7)		0.61			

SECONDARY OUTCOME- Duration of mechanical ventilation

Risk Variables	Unadjusted				Adjusted			
	Outcomes				P value	OR	95%CI	P value
	Ventilator free days <28 (Discharged with <28 days of Mechanical ventilation)		Zero Ventilator free days (Death or >28 days of Mechanical ventilation)					
N	%	N	%					
HAI etiology : AR-HAI:	21	31.3	46	68.7	0.04	3.9	1.01-11.4	0.04
NAR-HAI:	14	53.8	12	6.2				
Syndrome: Infection/Poisoning	31	57.4	23	42.6	<0.001	13.9	3.2-44.1	<0.001
Surgical/ Neoplastic/ others	4	10.3	35	89.7				
Age (mean \pm SD)	39.3 \pm 16.8		48.1 \pm 17.4		0.01			
APACHE III score (mean \pm SD)	59.9 \pm 28.6		71.7 \pm 30.3		0.06	3.1	0.99-1.03	0.07
Duration of ICU stay (median, IQR)	16(12-23)		20(13-34)		0.06	1.8	0.98-1.07	0.1
Duration of hospital stay (median, IQR)	26(22-39)		25(15-48)		0.63			
Device day at the time of HAI (median, IQR)	5(4-7)		7(4-10.2)		0.11			
Procalcitonin (median, IQR)	2.8(0.3-11.8)		3.2(0.9-9.5)		0.71			

Conclusions

In our cohort of critically-ill adult patients with VAP and CLABSI, infections with *Acinetobacter* spp. were associated with significantly poorer ventilator outcomes and a trend towards higher mortality.

References

BSI Event Protocol - 4psc_clabscurrent.pdf [Internet]. [cited 2016 Oct 20]. Available from: http://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf