Critical Review Form
Therapy

Influence of Labetalol on Cocaine-Induced Coronary Vasoconstriction in Humans
Am J Med **1993; 94: 608-610**

Objective: To assess the influence of labetalol, an agent with both α – and β-adrenergic blocking activity, on cocaine-induced coronary vasoconstriction.

Methods: At Parkland Memorial Hospital (Dallas, TX) 15 consenting patients undergoing catheterization for chest pain evaluation without any β-blocker use for at least 6 months received one of two interventions. Group 1 (N=6) subjects received intranasal cocaine (2mg/kg) followed 15 minutes later by intravenous saline. Group 2 (N=9) received the same dose of intranasal cocaine followed 15 minutes later by labetalol 0.25mg/kg over 2 minutes. Measurements included cocaine concentration @ 15-minutes, heart rate, MAP, and coronary arterial area.

Guide		Comments
I.	**Are the results valid?**	
A.	**Did experimental and control groups begin the study with a similar prognosis (answer the questions posed below)?**	
1.	Were patients randomized?	Yes, although authors do not detail or reference their randomization methods
2.	Was randomization concealed (blinded)?	Uncertain.
3.	Were patients analyzed in the groups to which they were randomized?	No intention to treatment analysis is reported, but neither is any cross-over.
4.	Were patients in the treatment and control groups similar with respect to known prognostic factors?	Unknown since baseline prognostic and demographic information not reported. Authors do not detail disease distribution among allocation groups.
B.	**Did experimental and control groups retain a similar prognosis after the study started (answer the questions posed below)?**	

1.	Were patients aware of group allocation?	Uncertain.
2.	Were clinicians aware of group allocation?	Uncertain, probably yes.
3.	Were outcome assessors aware of group allocation?	Yes.
4.	Was follow-up complete?	No loss to follow-up is reported.
II.	**What are the results (answer the questions posed below)?**	
1.	How large was the treatment effect?	• 40% had no CAD. Of the remaining subjects, 33% had one vessel, 13% had two- vessel and 13% had three-vessel CAD. • In the cocaine-intracoronary saline group, no variable changed after saline and the mean cocaine concentration was 0.14 mg/L (Table 1 p.609). Cocaine did increase MAP and decreased coronary arterial area in this group. • In the cocaine-labetalol group, labetalol did not attenuate heart rate or coronary arterial area (3.47 mm^2), but did decrease MAP (117 mmHg to 110mmHg).
2.	How precise was the estimate of the treatment effect?	No 95% CI were provided, but standard deviations are quite large.
III.	**How can I apply the results to patient care (answer the questions posed below)?**	
1.	Were the study patients similar to my patient?	No – cath lab patients likely start at higher baseline risk. Furthermore, no demographic or prognostic information is provided to risk stratify these subjects and permit comparison to our ED patients.

2.	Were all clinically important outcomes considered?	No clinically important outcomes were evaluated (symptom response, ECG changes, biomarker elevation, mortality).
3.	Are the likely treatment benefits worth the potential harm and costs?	Unknown based upon current study.

Limitations

1. **Selection bias – high risk cardiac cath patients are not typical ED chest pain patients.**
2. **External validity limited to cocaine intoxicated patients preventing and treated within 15 minutes of cocaine-use.**
3. **Pre-treatment with benzodiazepine may attenuate cocaine-induced cardiovascular effects.**
4. **No report of confounding prognostic parameters (baseline use of sympathomimetic agents, prior MI, Prinzmetal's Disease, etc) or distribution of CAD.**
5. **No assessment of patient/clinician important outcomes like subsequent MI, CHF, or mortality.**
6. **Unblinded patients, clinicians and outcome assessors open the potential for *selection*, *ascertainment* and *reporting* bias.**

Bottom Line

Cardiac cath study on selected patients without blinding suggesting no change in coronary arterial area following intranasal cocaine then 15-minutes later intracoronary labetalol. Future studies ought to assess EM patient/clinician-important outcomes and pure α-antagonist + β-antagonist therapy in true ED clinical patient population.