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Journal Club

P: In patients with blunt abdominal trauma

I: does the use of oral contrast

C: compared with IV contrast only

O: increase sensitivity for intra-abdominal injury?

Clinical Scenario

A 23-year old intoxicated male involved in a high-speed motor vehicle accident presents to the trauma bay complaining of leg pain. His abdomen is soft but he has minimal tenderness to palpation in the left lower quadrant. He is on a back board and in a c-collar. You consider the risks of giving oral contrast to this patient and wonder if the addition of oral contrast will increase CT scan sensitivity for an intra-abdominal injury.

Search Strategy

Medline 1995 – May 2008 using the Pubmed interface: “CT” OR computed tomography [Title] AND trauma [Title] AND contrast [Title] AND English [lang] AND Humans [MeSH Terms]

Search Outcome

20 papers were found of which 7 were irrelevant to the study question.

Relevant Papers

Author, Date, Country	Patient Group	Subtype (level of evidence)	Outcomes	Key Results	Study Weaknesses
Federle, et al 1995 USA	506 pt w/ blunt abd trauma	Retrospective chart review	Risks of OC in trauma pt	-1 pt received contrast into R mainstem bronchus -No other aspiration	ALL obtunded or uncoop pt intubated and had NGT placed
Federle, et al	510 pt w/	Retrospective	Radiographic	No pt had	Retrospective,

1997 USA	blunt abd trauma	chart review	and clinical Aspiration pneumonitis	aspiration pneumonitis	ability to determine aspiration
Lim-Dunham, et al 1997 USA	50 pediatric blunt trauma pt	Retrospective chart review	Aspiration pneumonia @ 48h or CT evidence or aspiration	-1 possible aspiration on CT w/ no clinical signs	Only looked at complicaitons; only those with neuro def got NGT
Shankar, et al 1999 UK	101 pediatric blunt abdominal trauma	Retrospective Chart Review	-bowel opacification -CT Scan -laparotomy	-62% OC never left stomach -28% OC had + CT/39% w/o OC -2 pt each group w/ suspected intestinal inj; 1 Non-tx lap in each -1 pt with 2 neg CT had colon perf	-All got NGT or OGT -only 57 pt got contrast -small pt group
Stafford, et al 1999 USA	500 blunt abd trauma pt	RCT	-abnl CT -laporotamy -missed injury -N/V -6 min delay w/ OC	-50 OC/55 no OC -1 non-tx lap each -1 miss SBO in OC/ 0 in no OC; higher sensitivity for solid inj w/o OC -N/V no diff	-incomplete review -all OC pt got NGT
Tsang, et al 1997 USA	2,162 blunt trauma patients	Retrospective chart review	248 pt with intra-abd injuries -21% required NGT -23% vomited -144 min add ED time for	-OC not essential in 100% liver/spleen injury -95% of bowel injuries missed on CT	Only 50% of + charts reviewed

			OC	even w/ OC	
Natanski, et al 2001 USA	1173 blunt trauma admitted pt		-# of intestinal perf dx by OC CT -aspiration pneumonitis rates @ 48 h	-9/1173 (1%) perfs on CT -8 pt (0.7% dx w/ aspiration pneumonia -no witnessed aspirations	-only admitted pt -did not compare w/o contrast
Allen, et al 2004 USA	500 blunt abd trauma pt	Prospective Review	Sensitivity and specificity of CT w/o OC for bowel and mesenteric injury based on Laporotomy, autopsy, D/C dx	-19/20 bowel and mesenteric injuries detected -2 false + -1 missed duodenal perf -95%/99.6% Sp/sens -Results w/in OC	-No control -Small sample -only level I/alpha pt
Allen, et al 2004 USA	500 blunt abd trauma pt	Prospective Review	Sensitivity, specificity and PPV for diaphragmatic injury w/o OC based on autopsy, laporotomy	-9 pt w/ DI -detected 6/9 injuries -no false pos -100%/66.7% sp/sens -PPV 1.00 -Results w/in OC	-no control -small sample -only level I/alpha pt
Halstead, et al 2004	74 pediatric blunt abd trauma pt	Retrospective chart review	-bowel visualization -non-bowel findings -confidence level	No difference b/t agents	-53 Hypaque -21 water -subjective -did not look specifically at intra-abd inj
Stuhlfaut, et al 2004 USA	1082 blunt abd trauma pt	Prospective chart review	Sensitivity, specificity, PPV, NPV	-99%/82% spec/sens -PPV 64% -NPV 99% -results w/in OC	-no control

Clinical Bottom Line

Although there is no increased aspiration risk when administering oral contrast to blunt abdominal trauma patients in these studies, it is important to note that the majority of patients received an NGT or OGT to administer the contrast and it causes a delay in reaching the CT scanner. Additionally, there is no benefit in sensitivity or specificity for detecting intra-abdominal injuries with administration of oral contrast.

References

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