

mine how well geriatric issues are integrated into General Surgery Residency curriculums.

**METHODS:** An electronic survey was sent to all PDs and surgery residents in the United States. Each question was designed to focus on different perspectives of a geriatric curriculum during surgical training.

**RESULTS:** 14% of the PDs responded and 18% of residents responded. 90% indicated the integration of geriatric issues during M&M conferences, 77% in direct patient encounters, 61.5% in Grand Rounds lectures, and one has instituted didactic sessions. The majority (> 90%) of PDs are unfamiliar with the available web-based resources. Only 13% have received research support regarding geriatrics. 50% of the programs have a patient base made up of 60% or greater elderly patients. 55% of those surveyed believed their programs needed improvement in educating residents about geriatric issues.

**CONCLUSIONS:** These surveys show that there is a need to greatly improve the integration of geriatric topics into the General Surgery Residency curriculum. Currently available resources are underutilized from nescience. An increased awareness of the problem is strongly recommended by these findings.

### Impedance cardiography: A non-invasive, perioperative strategy to alert surgeons to significant cardiovascular diseases in geriatric patients

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**INTRODUCTION:** Our population greater than 65 years will double by 2050 to 78 million. Geriatric patients needing urgent and even planned operations don't always have an optimized cardiovascular (CV) system. We hypothesized that the non-invasive technology of impedance cardiography (ICG) can be used to alert us to any problems.

**METHODS:** After Institutional Review Board approval, consent was obtained from 105 Chest Pain Center (CPC) patients. An ICG device that measures cardiac index (CI) and thoracic fluid content (TFC) was employed, the CPC physicians were blinded to ICG values. ST-elevation myocardial infarction (STEMI) patients were excluded. Our sample: 27 unstable angina, 15 congestive heart failure (CHF), 12 silent angina, 10 non ST-elevated myocardial infarctions (NSTEMI), 5 atypical chest pain and 36 non-cardiac/other were statistically analyzed.

**RESULTS:** CHF had the lowest CI and the highest TFC values. Comparing CHF to the other 90 CPC patients didn't reveal a significant difference. However, with CHF and NSTEMI combined the CI was significantly different from the other 80 CPC patients ( $p = 0.03$ ). In evaluating TFC, CHF patients had significantly higher measurements compared to the other 90 patients ( $p = 0.02$ ). Receiver Operating Curves showed TFC to be the single significant predictor of CHF. A two-tailed t-test revealed CHF patients can be distinguished from NSTEMI patients by TFC ( $p = 0.04$ ) but not CI ( $p = 0.19$ ).

Comparisons					
Cardiac Index (L/Min/m <sup>2</sup> )			Thoracic Fluid Content (% or Normal)		
CHF Mean (SD)	Other patients mean (SD), p	Normal patients Mean ( $\mu$ ), p	CHF Mean (SD)	Other patients mean (SD), p	Normal patients Mean ( $\mu$ ), p
2.16 (0.65)	2.40 (0.64), p=0.09)	3.35, p<0.0001	1.69 (0.50)	1.38 (0.51), p=0.02	1.00, p<0.0001
CHF +NSTEMI Mean (SD)	Other patients mean (SD), p	Normal patients Mean ( $\mu$ ), p	CHF +NSTEMI Mean (SD)	Other patients mean (SD), p	Normal patients Mean ( $\mu$ ), p
2.16 (0.62)	2.44 (0.64), p=0.02	3.35, p<0.0001	1.54 (0.48)	1.40 (0.53), p=0.12	1.00, p<0.0001

**CONCLUSIONS:** ICG can accurately assess CV status. Using CI and TFC it can identify CHF and NSTEMI in perioperative geriatric patients, possibly allowing better management.

### Sophorolipid treatment decreases LPS induced inflammatory responses and NO production in macrophages

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**INTRODUCTION:** Sophorolipids (SL), a class of naturally produced and easily modifiable glycolipids, show potential in the treatment of sepsis. We have shown that SL treatment decreases sepsis-related mortality in a rat model of cecal ligation and puncture and down-regulates pro-inflammatory cytokines. In this study we investigated the effect of SL on viability, morphology, and nitric oxide (NO) production in lipopolysaccharide (LPS)-activated macrophages over time.

**METHODS:** Rat alveolar macrophages (NR8383) were cultured with LPS (100ng/mL) +/- sophorolipid (200ng/mL) (LPS+/-SL) and assessed for viability, morphologic changes, and NO production at 24, 36, and 48 hrs.

**RESULTS:** There was a significant increase in viability over time in LPS+SL cultures compared to LPS-SL at 36 and 48 hrs (66% vs 56%, 36% vs 23%,  $p<0.05$ ). The LPS+SL cultures yielded an even distribution of cell clusters throughout the plate while those treated with LPS-SL showed migration of cell clusters toward the center of the plate. NO production was significantly decreased at 24 and 36 hrs in LPS+SL cultures versus LPS-SL (80.26 +/- 0.97 vs 86.89 +/- 3.75 micromoles/L, 117.00 +/- 0.47 vs 129.08 +/- 4.45 micromoles/L,  $p<0.05$ ). And treatment of unstimulated macrophages with SL decreased NO production at 36 hrs from baseline by 57% (10.27 +/- 0.7 vs 24.39 +/- 3.92 micromoles/L,  $p<0.05$ ).

**CONCLUSIONS:** Sophorolipid treatment decreases macrophage-related inflammatory responses in vitro. These data may provide a mechanism for sophorolipid-mediated improved survival in intra-abdominal sepsis.