Quality of Life after Damage Control Laparotomy for Trauma

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Aga Khan University Hospital, Karachi

Aga Khan University Hospital, Karachi

- Part of Aga Khan Foundation
  - Hospitals in 5 cities of Pakistan
  - Hospital in Afghanistan
  - University Hospital in Nairobi
- AKUH Karachi
  - 600 bed hospital
  - State of the art trauma center, Trauma fellowship training
  - 12 bed surgical ICU

Conflict Of Interest

- I have no financial interest, arrangement or affiliation that would constitute a conflict of interest.

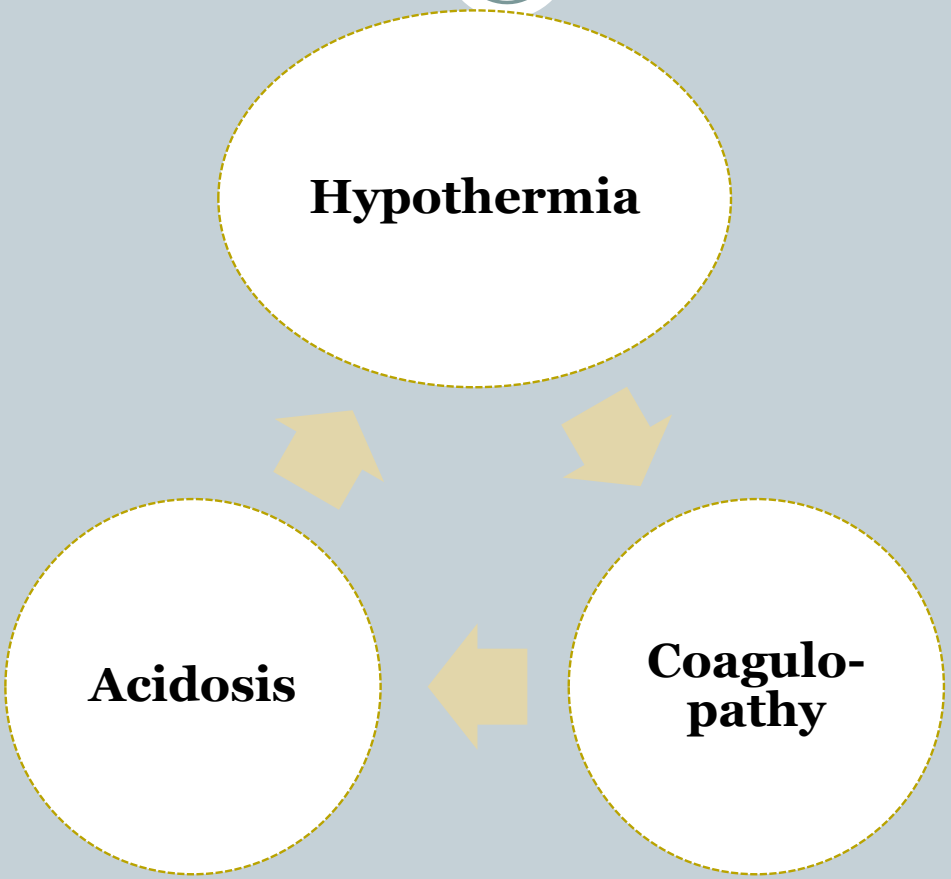
Introduction

- There is a paradigm shift in the management of trauma patients with multiple abdominal injuries.

- Patients die more because of metabolic failure than failure of operative procedure as such.

  - Rotondo MF et al. J Trauma 2003.

Lethal Triad

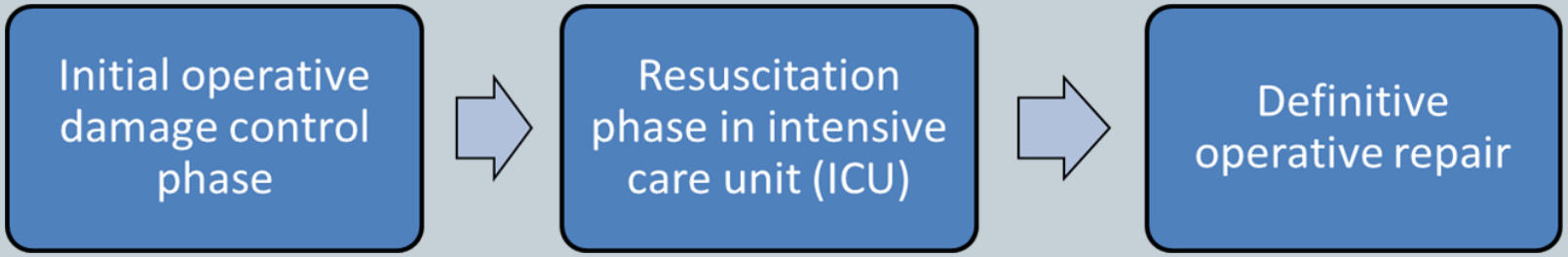


Moore EE et al. Am J Surg 1996.

- Widespread acceptance of Damage Control Surgery (DCS) over past two decades has revolutionized the management of these patients.
  - Burch JM et al. Ann Surg. 2007.
- Contravening most standard surgical teaching practices
  - "The best operation for a patient is one, definitive procedure."
  - In critically ill trauma patients requiring surgery

"The modern operation is safe for the patient. The modern surgeon must make the patient safe for the modern operation" - Lord Moynihan (1865 - 1936)

Damage Control Surgery



- Principles of first operation:
  - Hemorrhage control
  - Contamination prevention
  - Prevention from further injury.

- Reoperation is done at an interval of 48 to 72 hours
  - Resuscitation
  - Metabolic derangements corrected.

- There is usually significant edema of bowel wall and abdominal wall at the time of second operation
  - Inflammatory response
  - Reperfusion injury
  - Crystalloid resuscitation

- Ott MM et al. J Trauma. 2011.

Laparostomy and Complex Ventral Hernia

- Primary closure of sheath is not possible in 20 to 75 % of patients.
  - Acosta S et al. Br J Surg. 2011.
- In such a situation an absorbable mesh is sutured to the sheath - Laparostomy.
- These patients later develop large complex ventral hernias.
  - Burlew CC et al. J Trauma. 2012

- Though later repair of these hernial defects is an option, but repair is challenging.

- Abdominal wall reconstruction is frequently required.
  - Loss of abdominal domain

- A good fraction of these patients have no other option but to live with these hernias
  - Abdominal binder for rest of their lives.

- Though survival advantage of damage control surgery in multiple trauma patients is established, little is known about quality of life of the trauma patients who survived after damage control surgery.

Objectives

- To compare quality of life of abdominal trauma patients managed by damage control Laparotomy to quality of life of those abdominal trauma patients in whom single definitive laparotomy was done.

- To compare impact on job of abdominal trauma patients managed by damage control Laparotomy to those in whom single definitive laparotomy was done

Material and Methods

- Study Design
  - Retrospective Matched Cohort Study.
  - Study Cohort:
    - Abdominal trauma patients who underwent Damage Control Laparotomy
  - Control Cohort:
    - Abdominal trauma patients who underwent single definitive laparotomy

- Matching:
  - 1:1 matching
  - Age (Control within 5 years of DCS patient)
  - Gender
  - Time of presentation (Control within 1 years of DCS patient)

- Study Duration
  - Patients presenting from Jan 2009 till Dec 2014.
  - Minimum Follow Up of 1 year

- Study Site:
  - Single Centre
  - Aga Khan University Hospital Karachi, Pakistan

Selection Criteria

- Adult trauma patients of age 16 years and above who underwent laparotomy as part of their management

Exclusion Criteria:

- Death during index hospitalization
- Initial phase of damage control surgery done outside AKUH and then referred for further management.
- Patients having traumatic brain injury
- Patients having limb injuries sever enough to end up in amputation
- Missing data or no contact information available
- Refusal to grant informed consent to participate in the study.

Data Collection Procedure

- Patients were identified using appropriate ICD 9 codes
- After exclusions, basic demographic and clinical information retrieved from medical records on a specifically designed questionnaire

Outcome Assessment

- Quality of life:
  - Health-related quality of life was measured using the EuroQol-5 Dimensions (EQ-5D) questionnaire.
  - Validated questionnaire to measure health related quality of life in our population in patients recovering from critical illness in ICU
  - Urdu Version is available
  - Used after permission from EuroQol group.

EQ-5D

- Measures five health dimensions (mobility, self-care, routine usual activities, pain/discomfort, and anxiety/depression), each scored from 1 (no problem) to 3 (severe problems).
- In addition, a visual analogue scale, ranging from 0 to 100, provides a global rating of health status.
  - Lower scores indicate poorer health-related quality of life

EQ-5D

مندرجہ ذیل ہر گروپ کے کسی ایک خانے پر نشان ☑ لگائیے۔ براہِ مہربانی ان جملوں کی نشاندہی کیجئے جو آپ کی آج کل کی صحت کی بہترین عکاسی کرتے ہیں۔

چلنا پھرنا

- ❑ مجھے چلنے پھرنے میں کوئی مشکل نہیں
- ❑ مجھے چلنے پھرنے میں کچھ مشکل ہوتی ہے
- ❑ میں بالکل چل پھر نہیں سکتا/سکتی

اپنی دیکھ بھال کرنا

- ❑ مجھے اپنی دیکھ بھال کرنے میں کوئی مشکل نہیں
- ❑ مجھے نہانے اور کپڑے پہننے میں کچھ مشکل ہوتی ہے
- ❑ میں خود نہا یا کپڑے نہیں پہن سکتا/سکتی

روزمرہ کے معمولات *(مثلاً کام، پڑھائی، گھریلو کام کاج، خاندانی اور تفریحی مصروفیات)*

- ❑ مجھے اپنے روزمرہ کے کام کاج میں کوئی مشکل نہیں ہوتی
- ❑ مجھے اپنے روزمرہ کے کام کاج میں کچھ مشکل ہوتی ہے
- ❑ میں اپنے روزمرہ کے کام کاج نہیں کرسکتا/سکتی

درد/بے آرامی

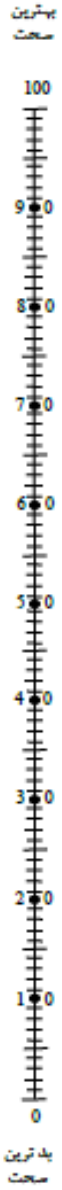
- ❑ مجھے کوئی درد یا بے آرامی نہیں
- ❑ مجھے کچھ درد یا بے آرامی ہے
- ❑ مجھے شدید درد یا بے آرامی ہے

بے چینی/ذہنی پریشانی (ٹینشن)

- ❑ مجھے کوئی بے چینی یا ذہنی پریشانی نہیں ہے
- ❑ مجھے کچھ بے چینی یا ذہنی پریشانی ہے
- ❑ مجھے شدید بے چینی یا ذہنی پریشانی ہے

اپنی حالیہ صحت کی صحیح طور پر نشاندہی کرنے کے لئے ہم نے آپ کی آسانی کے لئے ایک (تھرما میٹر کی طرح) پیمانہ بنایا ہے۔ اس پیمانے پر سو (100) آپ کی بہترین اور صفر (0) آپ کی بدترین صحت کی نشاندہی کرتا ہے۔

ہم چاہیں گے کہ آپ اس پیمانے پر نشاندہی کریں کہ آج کل آپ کے خیال میں آپ کی صحت کیسی ہے (بہترین یا بدترین) نیچے دئے گئے (آپ کی موجودہ صحت) خانے سے ایک لائن لگائیں جو پیمانے پر موجود اس نشان تک ہو جو آپ کی موجودہ صحت کی صحیح نشاندہی کرتی ہو۔



آپ کی موجودہ صحت

EQ-5D Administration

- Patients were contacted via telephone
- Verbal informed consent
- Option of visiting AKUH clinic as a Free of Charge visit given. (No compensation for travel expenses)
- EQ-5D filled via telephonic interview who opted not to visit the clinic
- Those who opted for clinic visit, EQ - 5D was filled in clinic.

- Information also obtained if they had to either change their profession or had difficulties after surgery, due to problems related to surgery.

Ethical Considerations

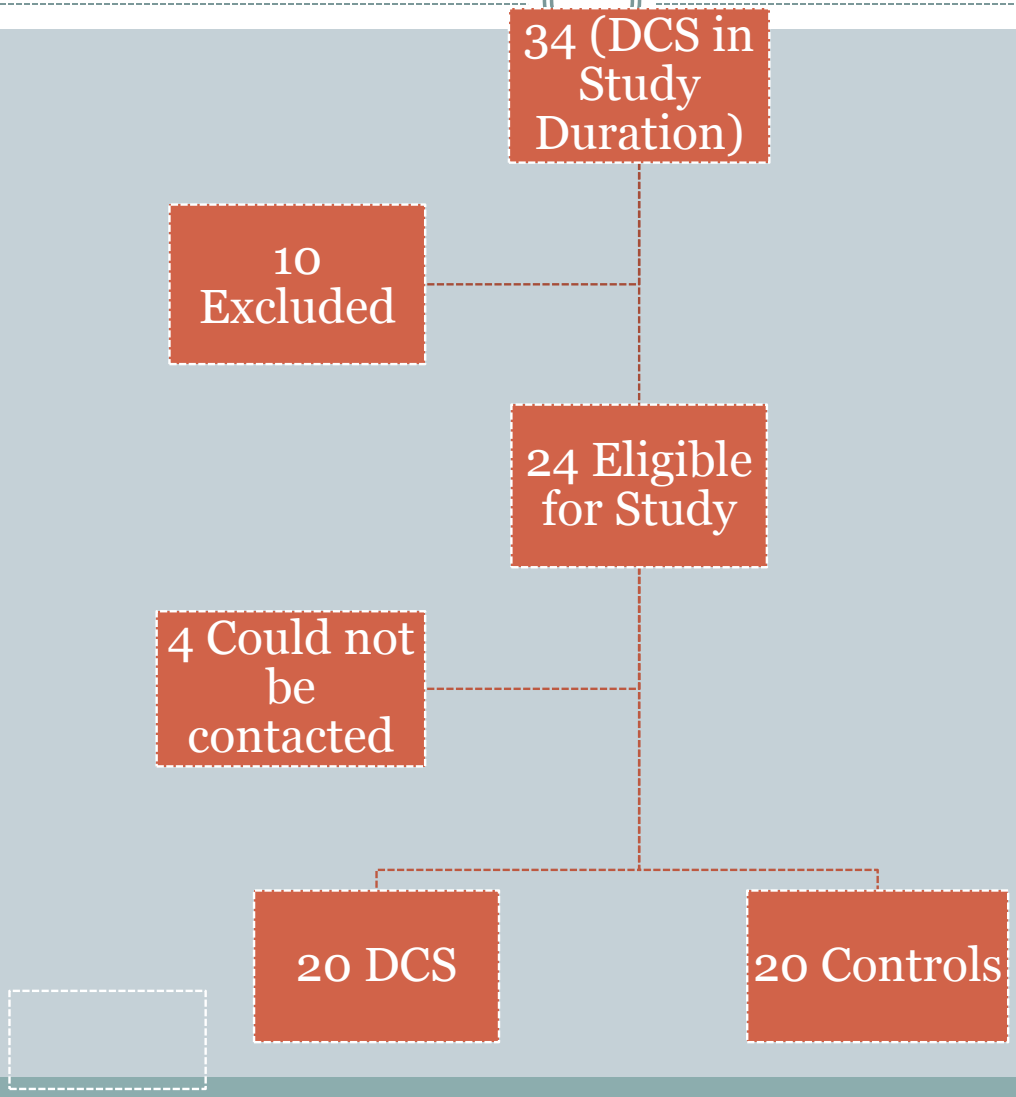
- Ethical Approval was sough before starting the study from ERC.
  - “1996-Sur-ERC-11”
- Permission taken form EuroQol Group
- Telephonic contact made maintaining all ethical considerations
- No individual identifiable information collected
- Data collected in coded form
- Results presented and to be published in aggregate

Statistical Analysis

- Quantitative variables are reported as mean ± standard deviation or median +/- interquartile range depending upon distribution of data.
- Qualitative variables are reported as proportions and percentages.
- Matched odds ratios are calculated using McNemar test for five individual dimensions in quality of life questionnaire.

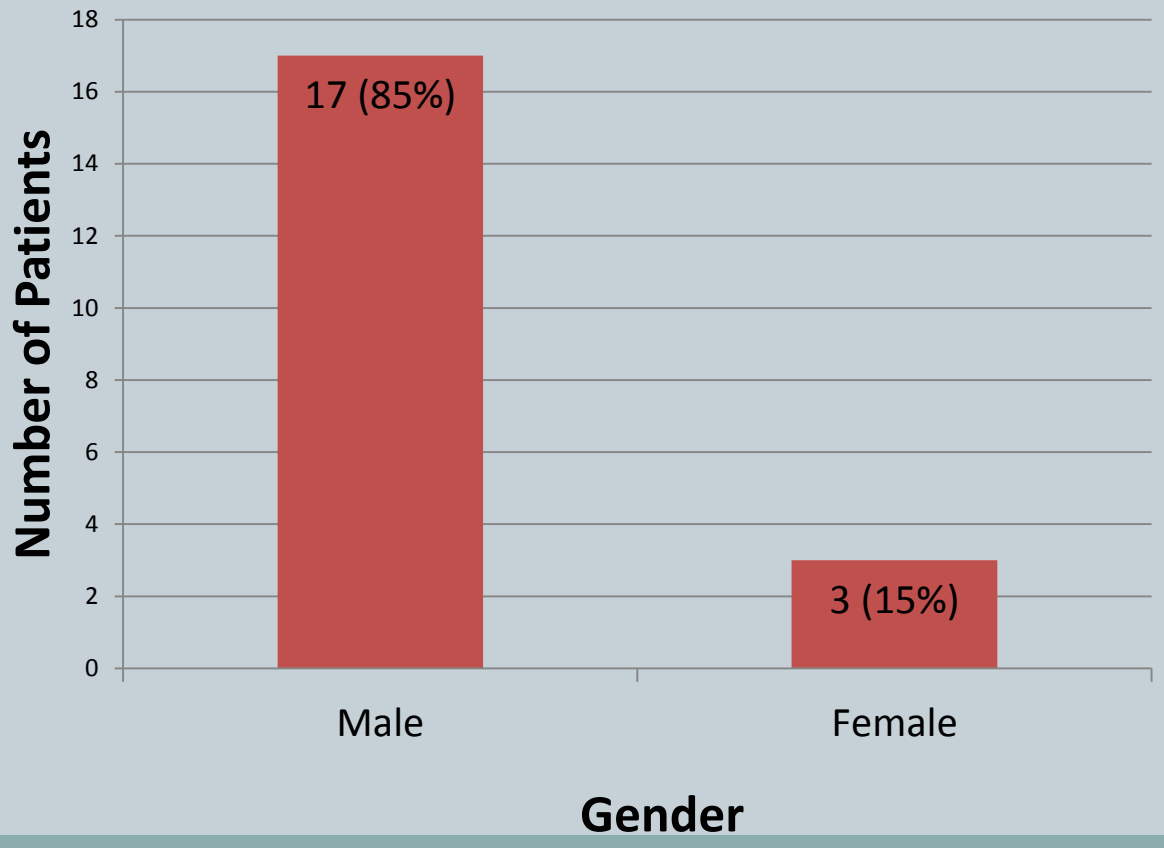
- Visual analogue scale score was compared using Wilcoxon Matched Pair Signed Rank Test.
- P value of less than 0.05 was considered significant.
- Data was entered and analyzed using STATA Software version 11.

Results

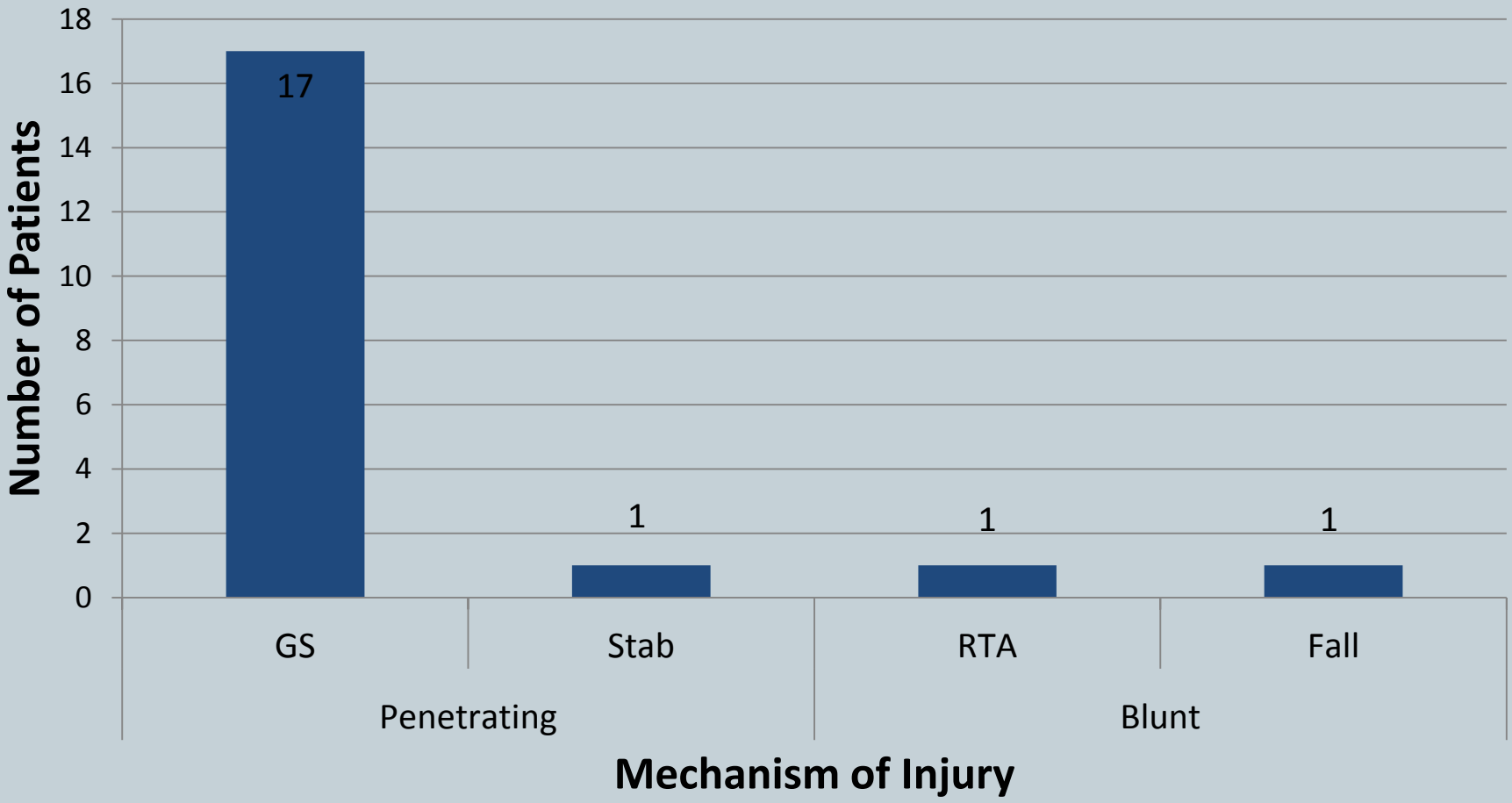

34 (DCS in Study Duration)
10 Excluded
24 Eligible for Study
4 Could not be contacted
20 DCS
20 Controls

Descriptives (DCS Group)

- Median age of patients (IQ Range) was 33 (26-40) years.
- Gender:



Mechanism of Injury

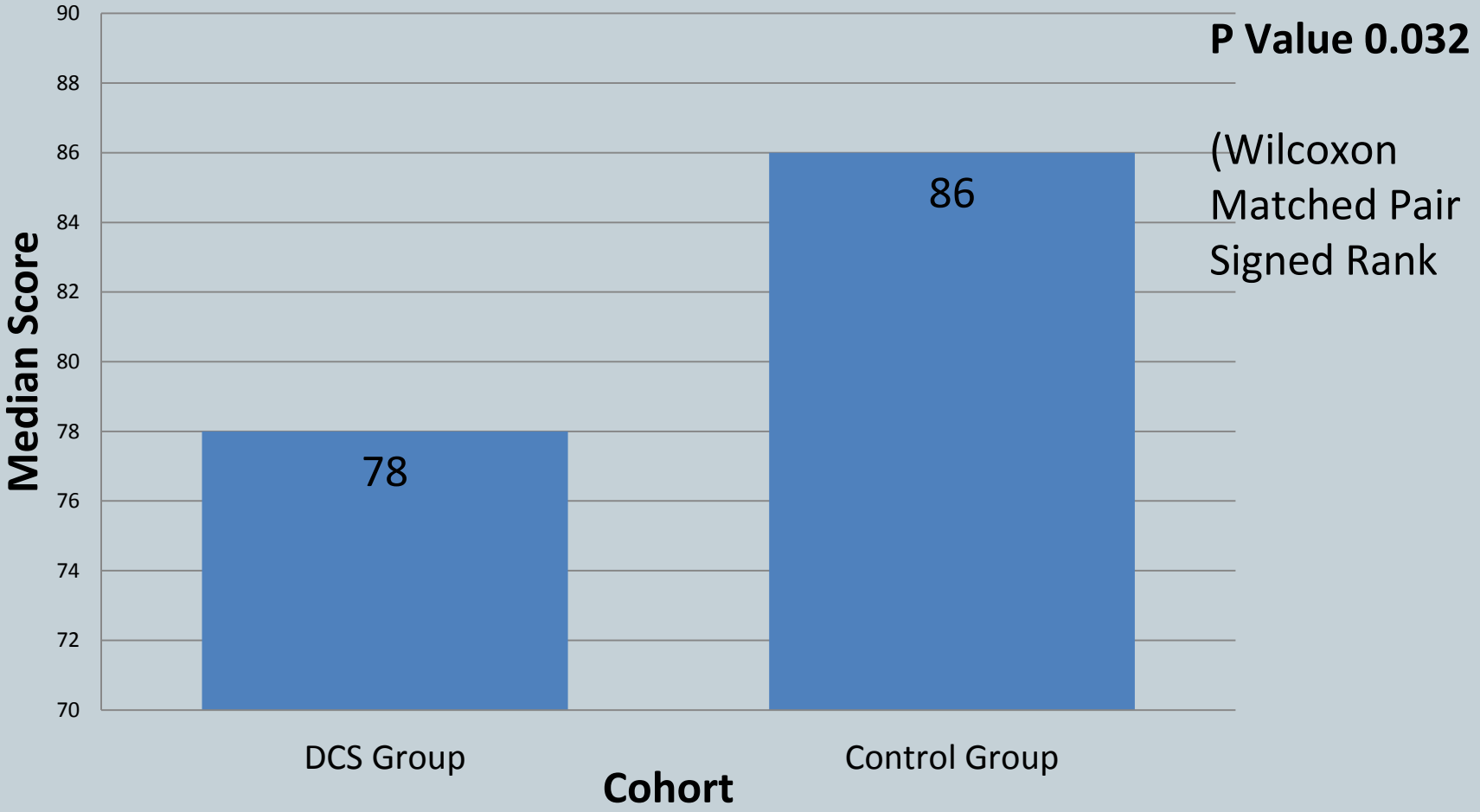


- Mean follow up: 46 +/- 12 Months (4 Years Approx)
- Facial sheath closure rate in damage control laparotomy group was 40% (8/20).
- One third of those who did not achieve facial sheath closure (4/12) underwent abdominal wall reconstruction.

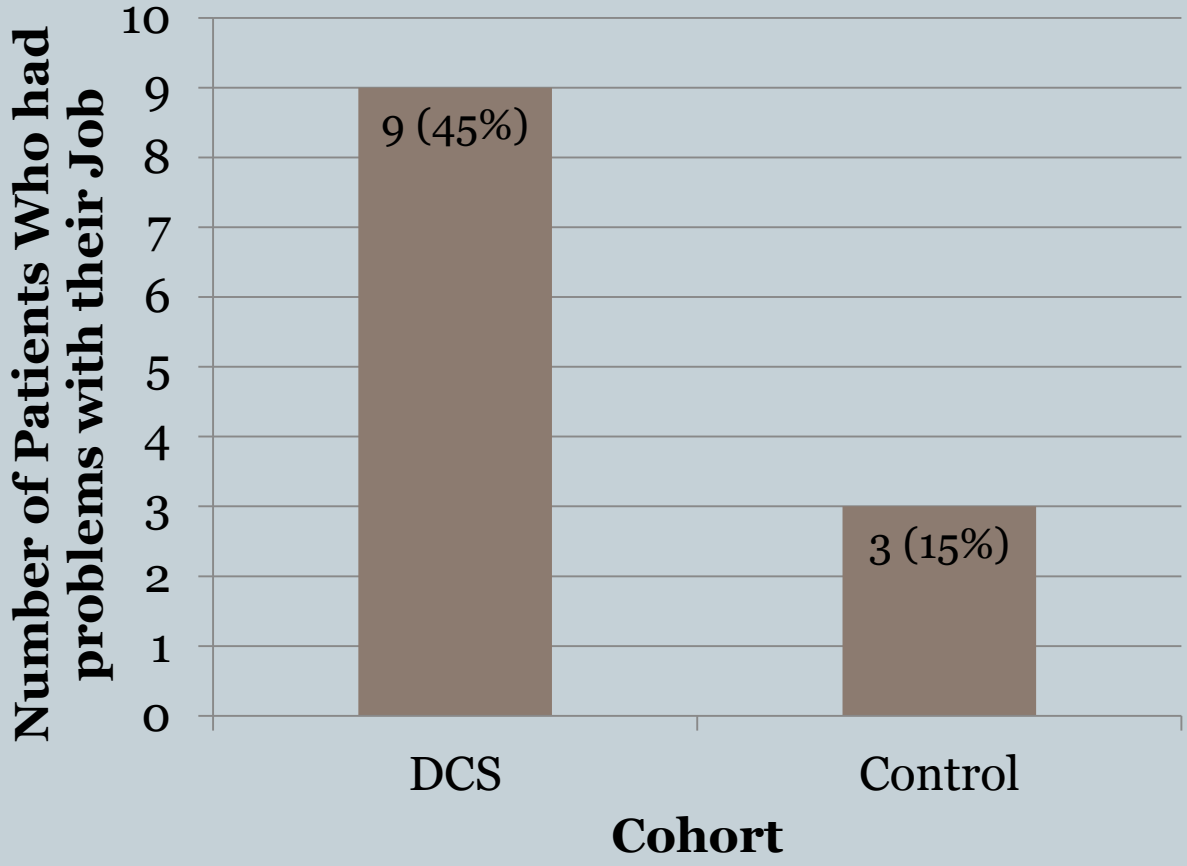
Health Dimensions in EQ-5D

Parameter	Median Score DCS	Median Score Control	Matched Odds Ratio	P Value (Mc Nemar Test)
Walking	1	1	0.50	1.00
Self Care Taking	1	1	1.00	1.00
Daily Routine Activities	1	1	1.33	1.00
Pain / Restlessness	1	1	1.00	1.00
Tension / Anxiety	2	1	1.67	0.73

Visual Analogue Scale Score



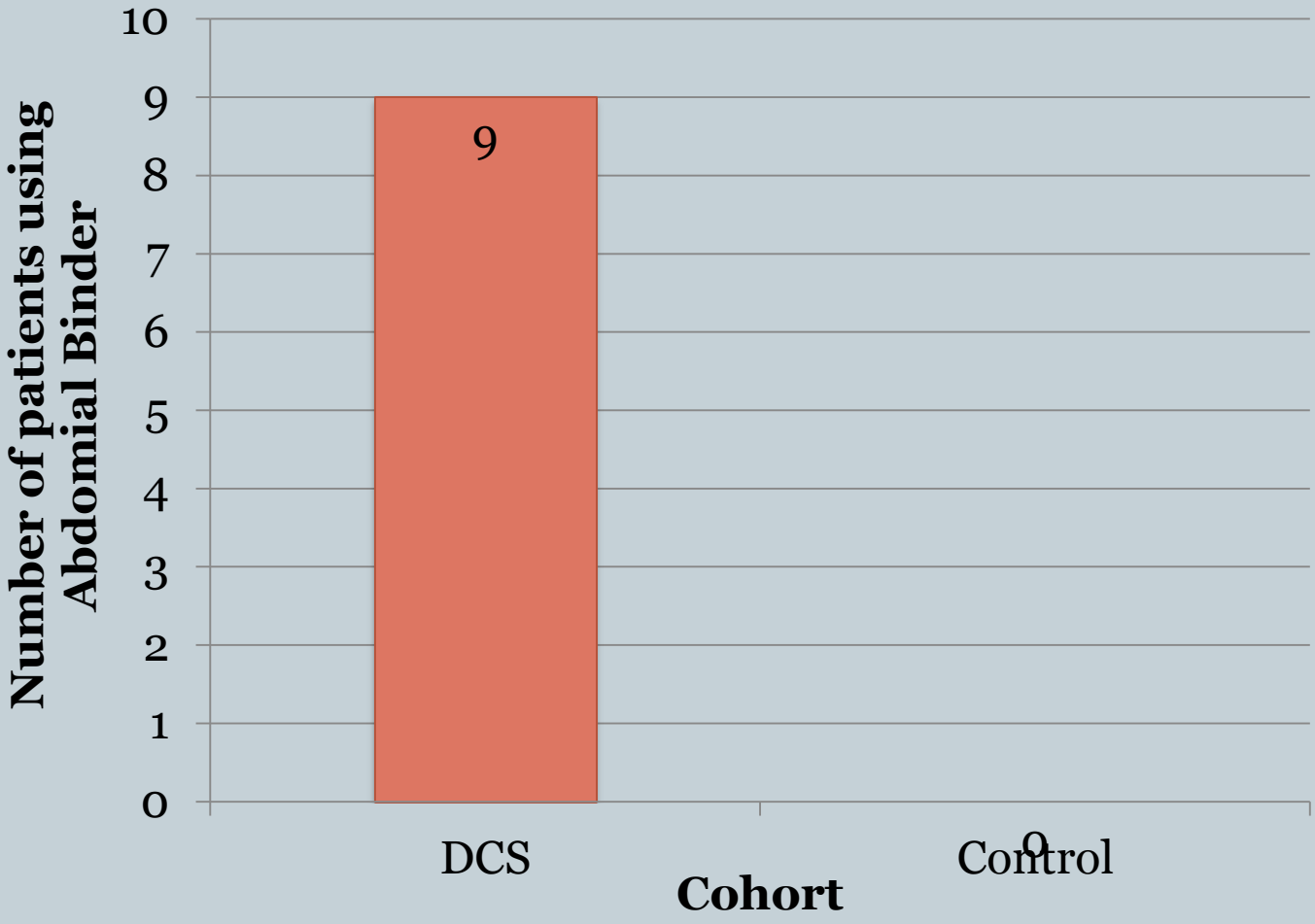
Problems with Profession



P Value: 0.07

(Mc Nemar Test)

Use of Abdominal Binder



P Vaue: 0.001

(Mc Nemar Test)

Discussion

- Survival advantage of damage control laparotomy in critically ill polytrauma patients is established.
- Due to low rate of facial closure, a large fraction of patients have no other choice but to live with complex hernia.

- Presence of hernia negatively impacts quality of life.
- Our study has highlighted an important point that patients after damage control surgery had significantly more problem with their profession.
- This points towards a different perspective of health in our set up
- Usually younger population in whom source of income matters more than self care and daily routine activities, reflected while rating QOL

- This is relatively untouched area in literature.

- Study done by Fox N et al found that early abdominal wound closure was associated with higher physical, emotional and general health scores on SF – 36 QOL questionnaire

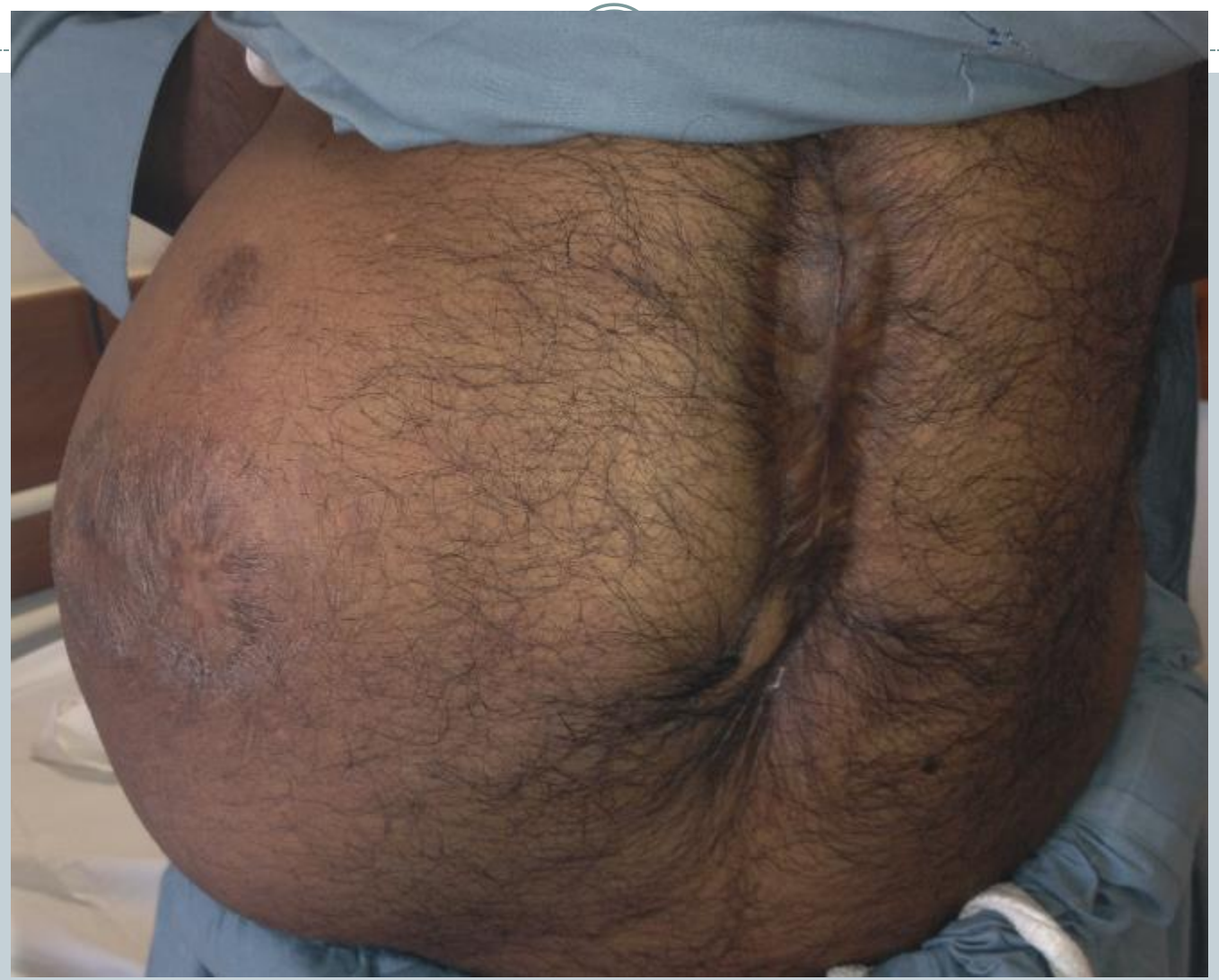
- Fox N et al. J Trauma Acute Care Surg. 2013

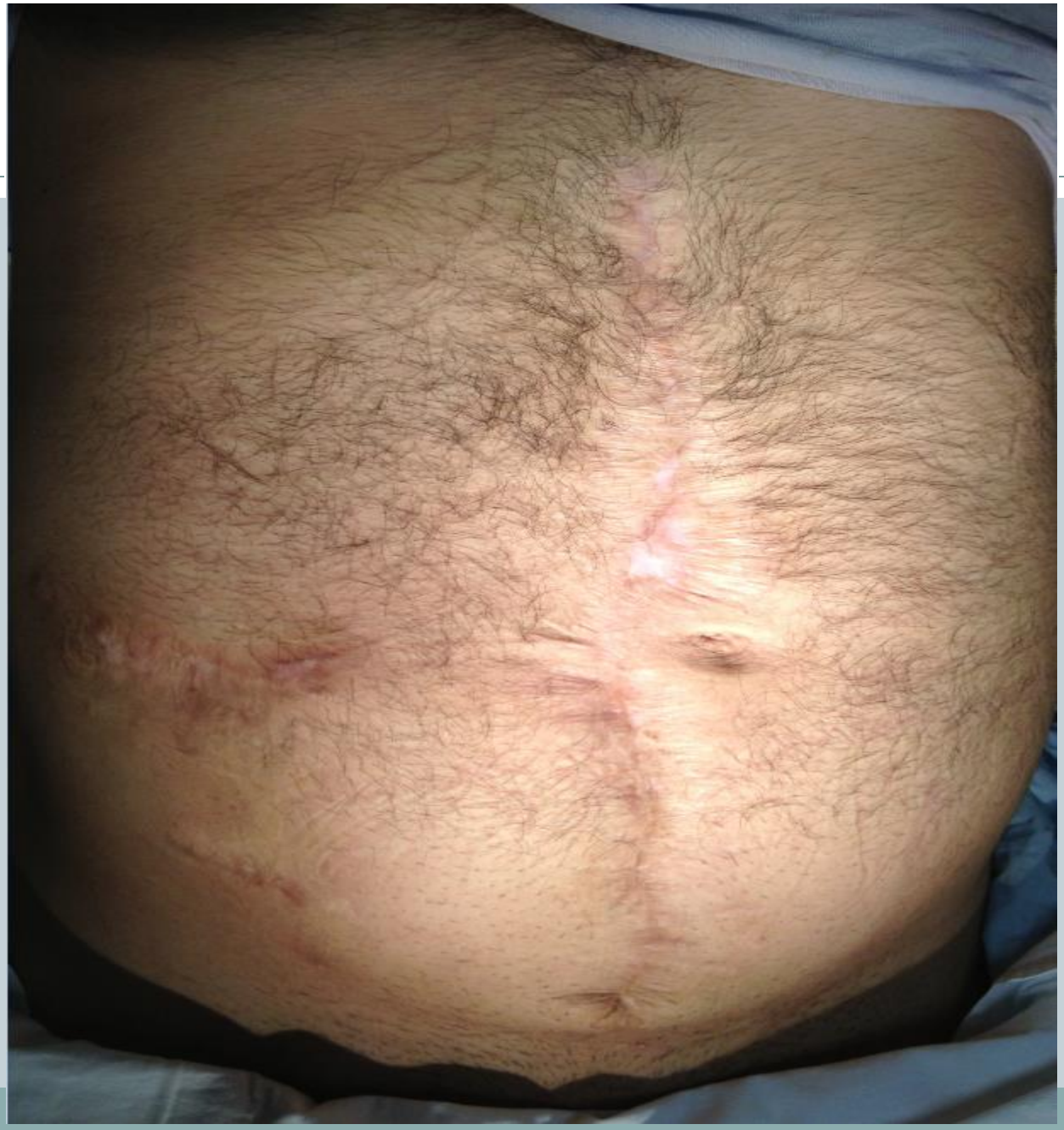
- Studies have shown use of abdominal binder and planned ventral hernia to be related to worse social well being.

  - Dubose JJ et al. J Trauma Acute Care Surg. 2013.
  - Arhinful E et al. J Trauma. 2011.

Conclusion

- Quality of life of damage control patients is worse than their age and gender matched patients who underwent trauma laparotomy but not damage control.
- Adequately powered studies need to be conducted to explore factors responsible for this finding for potential improvement.
- Emphasizing Planned Ventral hernia management – extensive ongoing debate.





Acknowledgements

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Thank You