**PANC Study (Pancreatitis: A National Cohort Study): national cohort study examining the first 30-days from presentation of acute pancreatitis in the UK**

**Authors**

PANC Study collaborative

**Correspondence**

Marianne Hollyman

Somerset NHS Foundation Trust, Musgrove Park Hospital, Taunton, TA1 5DA

[Marianne.hollyman@somersetft.nhs.uk](mailto:Marianne.hollyman@somersetft.nhs.uk)

ORCID ID: 0000-0002-5972-0454

@misshollyman

**Supplementary Materials - Index**

|  |  |  |  |
| --- | --- | --- | --- |
| **Supplementary Figures and Tables** | |  | |
| Table S1.  Aetiology of acute pancreatitis | | | *Page 2* |
| Table S2.  Patient characteristics stratified by 30-day mortality | *Page 3-4* | | |
| Table S3.  Multivariable model with patients clustered within hospitals | | *Page 5* | |

|  |  |  |
| --- | --- | --- |
| **Supplementary Appendices** |  | |
| Collaborators: Breakdown of authors and collaborators by role | | *Page 6-10* |

**Supplementary Figures and Tables**

***Table S1: Aetiology of acute pancreatitis***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Severity of pancreatitis |  | Mild  1836 (71.2) | Moderate  596 (23.1) | Severe  148 (5.7) | Total  2580 | p |
| Main cause of acute pancreatitis | Alcohol | 270 (14.7) | 150 (25.2) | 32 (21.6) | 452 (17.5) | <0.001 |
|  | Autoimmune | 4 (0.2) | 2 (0.3) | 0 (0.0) | 6 (0.2) |  |
|  | Gallstones | 972 (52.9) | 275 (46.1) | 59 (39.9) | 1306 (50.6) |  |
|  | Hyperlipidaemia | 32 (1.7) | 13 (2.2) | 3 (2.0) | 48 (1.9) |  |
|  | Idiopathic | 433 (23.6) | 111 (18.6) | 35 (23.6) | 579 (22.4) |  |
|  | Medication | 35 (1.9) | 9 (1.5) | 6 (4.1) | 50 (1.9) |  |
|  | Other cause | 48 (2.6) | 13 (2.2) | 1 (0.7) | 62 (2.4) |  |
|  | Post-ERCP | 31 (1.7) | 19 (3.2) | 11 (7.4) | 61 (2.4) |  |
|  | Trauma | 0 (0.0) | 1 (0.2) | 1 (0.7) | 2 (0.1) |  |
|  | (Missing) | 11 (0.6) | 3 (0.5) | 0 (0.0) | 14 (0.5) |  |

***Table S2: Patient characteristics stratified by 30-day mortality***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 30-day mortality  Total N (%) |  | Alive  2493 (97.2) | Died  73 (2.8) | Total  2566 | p |
| Age (years) | Median (IQR) | 56 (41 to 72) | 74 (64 to 83) | 57.0 (41 to 72) | <0.001 |
| Sex | Female | 1251 (50.2) | 29 (39.7) | 1280 (49.9) | 0.101 |
|  | Male | 1242 (49.8) | 44 (60.3) | 1286 (50.1) |  |
| BMI | < 18.0 | 38 (1.5) | 1 (1.4) | 39 (1.5) | 0.802 |
|  | 18.0-24.9 | 726 (29.1) | 24 (32.9) | 750 (29.2) |  |
|  | 25.0-29.9 | 759 (30.4) | 20 (27.4) | 779 (30.4) |  |
|  | >30 | 918 (36.8) | 23 (31.5) | 941 (36.7) |  |
|  | (Missing) | 52 (2.1) | 5 (6.8) | 57 (2.2) |  |
| Smoking status | Never smoked | 1365 (54.8) | 38 (52.1) | 1403 (54.7) | 0.682 |
|  | Current Smoker | 566 (22.7) | 14 (19.2) | 580 (22.6) |  |
|  | Ex-smoker$ | 504 (20.2) | 17 (23.3) | 521 (20.3) |  |
|  | (Missing) | 58 (2.3) | 4 (5.5) | 62 (2.4) |  |
| Alcohol consumption (units/week) | None | 1096 (44.0) | 29 (39.7) | 1125 (43.8) | 0.576 |
|  | 1-14 | 887 (35.6) | 23 (31.5) | 910 (35.5) |  |
|  | 15-35 | 196 (7.9) | 8 (11.0) | 204 (8.0) |  |
|  | >36 | 272 (10.9) | 10 (13.7) | 282 (11.0) |  |
|  | (Missing) | 42 (1.7) | 3 (4.1) | 45 (1.8) |  |
| Diabetes | None or diet controlled | 2200 (88.2) | 61 (83.6) | 2261 (88.1) | 0.291 |
|  | Tablet or insulin dependent | 291 (11.7) | 12 (16.4) | 303 (11.8) |  |
|  | (Missing) | 2 (0.1) | 0 (0.0) | 2 (0.1) |  |
| Charlson Comorbidity Index (CCI) | Median (IQR) | 2.0 (0.0 to 4.0) | 4.0 (3.0 to 7.0) | 2.0 (0.0 to 4.0) | <0.001 |
| Frailty state | Non-frail | 1979 (79.4) | 28 (38.4) | 2007 (78.2) | <0.001 |
|  | Pre-frail | 239 (9.6) | 7 (9.6) | 246 (9.6) |  |
|  | Frail | 255 (10.2) | 37 (50.7) | 292 (11.4) |  |
|  | (Missing) | 20 (0.8) | 1 (1.4) | 21 (0.8) |  |
| Main cause of acute pancreatitis | Alcohol | 438 (17.6) | 11 (15.1) | 449 (17.5) | <0.001 |
|  | Autoimmune | 6 (0.2) | 0 (0.0) | 6 (0.2) |  |
|  | Gallstones | 1259 (50.5) | 27 (37.0) | 1286 (50.1) |  |
|  | Hyperlipidaemia | 48 (1.9) | 0 (0.0) | 48 (1.9) |  |
|  | Idiopathic | 557 (22.3) | 21 (28.8) | 578 (22.5) |  |
|  | Medication | 45 (1.8) | 0 (0.0) | 45 (1.8) |  |
|  | Other cause | 86 (3.4) | 3 (4.1) | 89 (3.5) |  |
|  | Post-ERCP | 51 (2.0) | 9 (12.3) | 60 (2.3) |  |
|  | Trauma | 2 (0.1) | 0 (0.0) | 2 (0.1) |  |
|  | (Missing) | 1 (0.0) | 2 (2.7) | 3 (0.1) |  |

$ - stopped smoking >28 days ago

***Table S3: Multivariable model with patients clustered within hospitals***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 30-day Mortality |  | Alive | Died | OR (univariable) | OR (multilevel) |
| Age (years) | Mean (SD) | 56 (19) | 72 (15) | 1.70 (1.52-1.90, p<0.001)\* | 1.25 (1.04-1.51, p=0.016)\* |
| Sex | Female | 1903 (97.0) | 58 (3.0) | - | - |
|  | Male | 1900 (95.6) | 88 (4.4) | 1.52 (1.09-2.14, p=0.015) | 1.54 (1.04-2.27, p=0.032) |
| Charlson Comorbidity Index (CCI) | Mean (SD) | 2.2 (2.3) | 4.9 (2.4) | 1.45 (1.37-1.54, p<0.001) | 1.24 (1.12-1.38, p<0.001) |
| Frailty state | Non-frail | 3003 (98.2) | 56 (1.8) | - | - |
|  | Pre-frail | 373 (96.4) | 14 (3.6) | 2.01 (1.07-3.55, p=0.021) | 0.94 (0.49-1.80, p=0.842) |
|  | Frail | 401 (84.4) | 74 (15.6) | 9.90 (6.90-14.27, p<0.001) | 3.56 (2.11-6.01, p<0.001) |
| Main cause of acute pancreatitis | Gallstones | 1920 (97.3) | 54 (2.7) | - | - |
|  | Alcohol | 676 (96.8) | 22 (3.2) | 1.16 (0.69-1.89, p=0.570) | 4.53 (2.38-8.63, p<0.001) |
|  | Post-ERCP | 82 (82.0) | 18 (18.0) | 7.80 (4.28-13.68, p<0.001) | 9.31 (4.57-18.94, p<0.001) |
|  | Idiopathic | 857 (95.3) | 42 (4.7) | 1.74 (1.15-2.62, p=0.008) | 2.18 (1.37-3.44, p=0.001) |
|  | Other | 251 (98.4) | 4 (1.6) | 0.57 (0.17-1.40, p=0.277) | 0.72 (0.24-2.18, p=0.562) |
| History of pancreatitis | No | 2723 (95.6) | 126 (4.4) | - | - |
|  | Yes (acute) | 772 (98.5) | 12 (1.5) | 0.34 (0.18-0.59, p<0.001) | 0.47 (0.25-0.88, p=0.018) |
|  | Yes (known chronic) | 305 (97.4) | 8 (2.6) | 0.57 (0.25-1.10, p=0.125) | 0.65 (0.29-1.47, p=0.298) |

\* OR in decades

*Obesity and smoking were removed from the model at the univariant stage due to non-significance*

**Collaborators**. Breakdown of collaborators by role.

**Collaborative writing group**

Angeliki Kosti, Hannah Javanmard-Emamghissi, Stephen R Knight, Blazej Rybinski, Susan J Moug, Gillian M Tierney, Paul Marriott, Marianne Hollyman

**Study Analysis:** Stephen Knight, Marianne Hollyman

**Study design:** Angeliki Kosti, Aditya Borakati, Farid Froghi, Hannah Javanmard-Emamghissi, Blazej Rybinski, Richard W Laing, Peter O Coe, Jonathan N Lund, Susan Moug, Gillian Tierney, Paul Marriott, Keith J Roberts, Brain R Davidson, Andrew M Smith, Marianne Hollyman

**Collaborators**

Aarti Varma, Aayush Gupta, Abdalla Mustafa, Abdul Hakeem, Abdul Quddus, Abdullah Bin Sahl, Abhijeet Beniwal, Abidemi Adesuyi, Ada Maria Krzak, Adam Brooks, Adam Frampton, Adam Gadhvi, Adam Talbot, Ahmed Elnogoomi, Ahmed Mahgoub, Ahmed Naqvi, Ahmed Pervez, Ahmed Salman Bodla, Ahmed Taha, Ahmed Tawfik, Aishwarya Prabhu, Aiysha Puri, Ajay Belgaumkar, Ajay Gupta, Alan McCrorie, Alasdair Findlay, Albert Healey, Alexandra De Prendergast, Alexia Farrugia, Alexios Dosis, Alfie Adiamah, Ali Sallam, Alicia Wong, Alison Bradley, Allie Martin, Alma Collins, Altaf Awan, Amanda Bond, Amanda Koh, Amar Kourdouli, Ameet G Patel, Amenah Dhannoon, Amjad Khalil, Amlan Banerjee, Amnah Khan, Amr Elserafy, Amro Alamassi, Amy Owen, Anastasia Benjafield, Andrea Zuccarrelli, Andreas Luhmann, Andrew Jones, Andrew Kennedy-Dalby, Anil Kaul, Anil Kumar, Annabelle White, Annalie Baker, Annamaria Minicozzi, Antonio Bardoli, Antonio Leyte Golpe, Antonio Manzelli, Aran Sivakumar, Arin Saha, Arjun Shajpal, Artemisia Lango, Arthur Cotton, Ashitha Nair, Ashley Brown, Ashok Menon, Ashutosh Tandon, Asma Afza, Asma Hassan, Awad Shamali, Ayesha Khalid, Azel Regan, Balasubramanian Piramanayagam, Bankole Oyewole, Basil Ibrahim, Ben Murphy, Bethan Clayton, Bethan Jenkins, Bhaskar Kumar, Bo Yuan Khor, Bryony Lees, Callum Blacklock, Callum Johnstone, Camila Hidalgo Salinas, Carine Boven, Caroline Wolstenholme, Carven Chin, Catherine Gilmore, Catherine Sharp, Cerys Walker, Chad Harris, Chaitra Khanna, Chanoka Ferguson, Charis Kyriakides, Charlotte Bee, Chelise Currow, Chetan Parmar, Chris Collins, Christopher Halloran, Chris J Smart, Christodoulos Neophytou, Christopher Delaney, Chukwuemeka Anele, Claire Heugh, Clarisa Thian Puay Choh, Cleo Kenington, Craig Wyatt, Cynthia Borg, Damian Mole, Danaradja Arumugam, Dariusz Gunia, Darren Porter, David Berry, David Griffith, David Hou, David Longbotham, David Mitton, David Strachan, Davide Di Mauro, Dawit Worku, Deborah Heaphy, Declan Dunne, Denise Yeung, Devika Arambepola, Dhya Al Leswas, Dimitri J Pournaras, Dimitrios Damaskos, Dina Saleh, Dixon Osilli, Douglas Pearman, Douglas Whitelaw, Ehsan-Ul-Haq, Eleanor Mack, Eleanor Spurring, Elias Jamieson, Elisa Lenzi, Elizabeth Gemmill, Emanuele Gammeri, Emil Bota, Emily Britton, Emily Farrow, Emily Lloyd, Emily Moran, Emmanuel Itobi, Eoin Craig, Ermal Tanaka, Ezzat Chohda, Fahad Ullah Muhammad, Fahed Youssef, Farah Roslan, Farhat Amir, Filippo Di Franco, Francesco Abbadessa, Francesco DiMaggio, Ganga Gurung, Gemma Faulkner, George Choa, George Kerans, George N Davis, Georgios Galanopoulos, Georgios Karagiannidis, Gerard McCabe, Ghazaleh Mohammadi-Zaniani, Ghulam Nawaz, Gijs Van Boxel, Giles Bond-Smith, Girivasan Muthukumarasamy, Grace Grey, Grace Wong, Guy Finch, Hamad Khan, Hannah Bourne, Hannah Murray, Hannah Rottenburg, Hannah Wright, Hany Khalil, Harry VM Spiers, Hazem Bashiti, Hiba Shanti, Husam Ebied, Hwei Jene Ng, Hytham K S Hamid, Hyun Kim, Iain Wilson, Ilayaraja Rajendran, Ioannis Gerogiannis, Ishaan Patel, Islam El-Abbassy, Isobel Burridge, Jade Caldwll, Jamaall Jackman, James Clark, James Duncan, James Milburn, James O'Kelly, James Olivier, James Rink, James Royle, Jason Rai, Javed Latif, Jawad Ahmad, Jed Maliyil, Jenna Carr, Jennifer Coles, Jennifer McGarry, Jeyakumar Apollos, Jie Lim, Joanna Gray, Joel Thomas, John Bennett, John Findlay, John Spearman, John Young, Joseph Meilak, Joshua Alfred, Joshua Welsh, Juen Hao Chan, Julia Martin, Kamlesh Patel, Kar Yeung Kenneth Ko, Karl Isand, Kasra Razi, Kasturi Sarathy, Katarzyna Powezka, Kate Foster, Katerina Peleki, Katharine Bevan, Katherine Fox, Katie Edwards, Katy Larsen, Kayleigh Spellar, Ke En Oh, Keh Kong, Keiran Brown, Keith Seymour, Kevin Beatson, Kevin Etherson, Kulbir Mann, Kulsoom Nizami, Kunal Rajput, Lauren Lavery, Lauren Sawdon, Lawrence Nip, Layal Al-Hamed, Leah Fagan, Leo Watton, Alexander Les Saint-Grant, Liam Convie, Louis-Pierre Girard, Lucy Huppler, Luke Marsh, Luke Seretny, Lydia Newton, Mahfooz Buksh, Mahmoud Sallam, Malayil Mathew, Manju Nadh Prasanth, Manu Nayar, Manuk Wijeyaratne, Marina Ransome, Mariuca Popa, Mark Gallea, Mark Taylor, Martha Gismondi, Martin Michel, Martin Wadley, Marwa Al-Azzawi, Mary Claxton, Matta Kuzman, Matthew Bonomaully, Matthew Newman, Mayank Bhandari, Michael Courtney, Michael Jones, Michael Rarity, Michael Wilson, Mohamed Ebraheem, Mohamed Elnaghi, Mohamed Saleem Noor Mohamed, Mohammed Al-Hijaji, Mohammed Al-Rashedy, Mohammed Kaif Qayum, Mohammed Zourob, Mohannad Gaber, Milind Rao, Muhammad Ariful Islam, Muhammad Umair Rashid, Muneeb Zafar, Mushal Naqvi, Mustafa Nabeel Ahmad, Muwaffaq Telfah, Nabeel Merali, Nabih Hanbali, Nadia Gulnaz, Nagappan Kumar, Najam Husain, Natarajan Angamuthu, Navanith Murali, Naveed Kirmani, Nazrin Assaf, Neel Doshi, Nehal Sureshkumar Shah, Nersheranjeet Basra, Neville Menezes, Nick Dai, Nicolaas Schuitvlot, Nisheeth Kansal, Nnaemeka Chidumije, Nuha Yassin, Olaitan Babalola, Olamide Oyende, Olatoyosi Williams, Olga Pawlik, Olivia Spence, Omar Abdel Jalil, Ondrej Ryska, Osborne Vaz, Panchali Sarmah, Panduka Jayawardena, Panna Patel, Patrick Hart, Paul Cromwell, Paul Manby, Paul Needham, Paula Ghaneh, Pawan Kumar Dhruva Rao, Peter Eves, Peter May-Miller, Peter Szatmary, Philip Ireland, Pooja Seta, Prabhu Ravi, Pradeep Janardhanan, Pradeep Patil, Pritesh Mistry, Priya Heer, Puja Patel, Quentin Nunes, Quratul Ain, Rachael Clifford, Rachel Brindle, Rachel Lee, Rachel Qian Hui Lim, Rafid Rahman, Rahul Mohan Kumar, Raimundas Lunevicius, Rajarshi Mukherjee, Rajiv Lahiri, Rami Behmida, Ramprasad Rajebhosale, Raphael Levy, Raunaq Chhabra, Raymond Oliphant, Rebecca Freeman, Rebecca Jones, Rema Elkalbash, Rhiannon Brignall, Richard Bell, Richard Byrom, Rikhilroy Patel, Robert Buhain, Robert Clark, Robert Sutton, Roberto Presa, Roger Lawther, Roshni Patel, Roxanna Zakeri, Ruchir Mashar, Rui Wei, Ryan Baron, Sadia Tasleem, Safwan Shafeeque Kadambot, Saima Azam, Saj Wajed, Sakhawat Ali, Samantha Body, Samerah Saeed, Samik Bandyopadhyay, Samy Mohamed, Sanjay Pandanaboyana, Sapna Hassasing, Sarah Dyer, Sarah Small, Sarangan Seeralakandapalan, Sathyaseelan Arumugam, Saurav Chakravartty, Seok Ling Ong, Setthasorn Zhi Yang Ooi, Shahani Nazir, Shahbaz Zafar, Shahram Shirazi, Shameena Bharucha, Shaukat Majid, Shehzad Ahmed, Shenbaga Kumar Rajamanickam, Sherif Albalkiny, Sherwin Ng, Shihab Chowdhury, Shuker Yahia, Siddhartha Handa, Simon Fallis, Simon Fisher, Simon Jones, Simon Phillips, Smrthi Mitra, Somaiah Aroori, Sonam Thanki, Sophie Rozwadowski, Sophie Tucker, Soraya Conroy, Sowrav Barman, Srushti Bhat, Stephen McCallion, Stergios Tezas, Stijn van Laarhoven, Stuart Cowie, Sudhi Rao, Sujeewa Sellahewa, Sumbal Bhatti, Sumesh Kaistha, Susannah Argyropoulos, Suvi Virupaksha, Tabitha Difford, Tamanna Shikh-Bahaei, Tamer Saafan, Tammy Lo, Tania Magro, Tanzeela Gala, Tarek Katbeh, Tejinderjit Athwal, Terence Lo, Tessa Fraser, Theophillus Anyomih, Thomas Chase, Thomas Walker, Thomas Ward, Tom K Gallagher, Tom Richardson, Tom Wiggins, Uzair Ali, Varun Patnam, Venkatesh Kanakala, Victoria Beynon, Victoria Hudson, Victoria Morrison-Jones, Vijay Korwar, Virginia Massella, Vishal Parekh, Vivian Ng, Wei Hann Toh, Wei Toh, William Hawkins, William Cambridge, William Harrison, Yan Yu Tan, Yasser Abdul Aal, Yogeshkumar Malam, Zaher Toumi, Ziad Al-Khaddar, Zoe Bleything