TPL 005

EXACERBATION STATUS IS LINKED TO DYSFUNCTIONAL PHAGOCYTOSIS IN STABLE IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS BUT NOT TO PULMONARY FUNCTION

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Introduction/Aim: Chronic obstructive pulmonary disease (COPD) is a significant and increasing public health challenge. Much of the disease burden and economic cost of COPD is associated with acute exacerbations and resulting bacterial colonisation of the airways. The aim of this study is to determine whether the bactericidal functions of phagocytic cells (monocytes and neutrophils) are impaired, predisposing COPD patients to increased bacterial infections.

Method: Spirometry and venous blood were collected from COPD patients across the GOLD2015 spectrum and a group of healthy controls were recruited for comparison. Flow cytometry was used to determine differential counts for a range of leukocytes and internalisation of fluorescently labelled S*treptococcus pneumoniae* in whole blood phagocytes. Groups were compared by ANOVA and post hoc tests.

Results: Results demonstrated that peripheral blood monocytes (p=0.04) and neutrophils (p=<0.0005) in exacerbation prone COPD patients had significant reductions in both bactericidal activity against *S. pneumoniae* (p=0.01) and internalisation of inert microparticles (p=0.01) compared to healthy controls and also stable COPD patients. Data collection remains ongoing.

Conclusion: This study has demonstrated that defective phagocytosis in COPD patients prone to exacerbations is irrespective of disease severity (according to GOLD2015). Thus dysfunctional cellular activity of blood monocytes and neutrophils, and a failure to mount an appropriate immune response to infection, may enable bacteria to overwhelm host defences leading to further lung tissue damage.

Grant Support: Institutional (JCU) funds to CR supported this project.

Declaration of interest: all of the named authors have no significant competing financial, professional or personal interests that might have influenced the performance or presentation of the work described in this submission.

TPL 006

COMMENCEMENT OF PULMONARY REHABILITATION DURING HOSPITAL ADMISSION INCREASES RATES OF ATTENDANCE AMONG PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): RANDOMISED CONTROLLED TRIAL

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Introduction: Early implementation of pulmonary rehabilitation (PR) after an Acute Exacerbation of COPD (AECOPD) is safe and effective, however the optimal time to implement PR remains unknown.

Aim: To compare PR attendance and completion rates for participants commencing PR at various time points relative to a hospital admission for AECOPD.

Methods: Participants admitted to hospital with an AECOPD were randomly allocated to commence PR either (i) at time of hospital admission, (ii) four weeks or (iii) eight weeks post discharge. Primary outcome measures were attendance and completion rates. Secondary outcome measures include 6-minute walk test (6MWT) and hospital re-presentation within 8 weeks post discharge. Primary outcomes were analysed using Chi Square and odds ratio. Secondary outcomes were analysed with ANCOVA. Significance was set at p<0.05.

Results: Sixty-two participants (mean(SD) age 68(12.9), baseline FEV1%predicted 47(19.4)) were recruited to the trial. 80% of those commencing PR at time of hospital admission attended at least one session of PR, compared to 65% of those commencing at 4 weeks post, and 50% of those commencing at 8 weeks post discharge (X^2(df)=4.1(2), p=0.1). Participants were more likely to attend PR at time of hospital admission compared to 4 weeks (OR(95% CI)=0.5(0.1 to 1.9), p=0.3) and 8 weeks (OR(95% CI)=0.25(0.1 to 0.9), p=0.048) post discharge. 60% of participants commencing PR at time of hospital admission completed the program, compared to 40% of the 4 weeks group, and 46% of the 8 weeks group (X^2(df)=1.7 (2), p=0.4). There were no significant differences in hospital presentations (F=1.2, p=0.3) or readmissions (F=0.7, p=0.5), and all groups showed a tendency for improvement in 6MWT (F=1.6, p=0.22).

Conclusion: Patients who commence PR at time of hospital admission are significantly more likely to attend, but just as likely to complete and improve exercise capacity, as those commencing at 8 weeks post admission.

Grant Support: Western Health Research Grant

Declaration of Interest Statement: We hereby declare that there are no known conflict of interest in this project.

Word count: 300 words