Antimicrobial Stewardship and Antimicrobial Inpatient Prescribing during COVID-19

Róisín O' Connor[1], Dr Liam Townsend[1], Mary Kelly[1], Dr Carol Gaffney[1], Dr Gerry Hughes[1], Bernard Carr[1], Gail Melanophy[1], Dr. Brian Kent[1], Prof Breida Boyle[1], Prof Colm Bergin[1].
[1]St James's Hospital , Dublin.

Introduction

Current research suggests that only a small proportion of COVID-19 patients will have a bacterial co-infection at presentation (typically less than 10%). A previous study in our institution found that prolonged durations of antimicrobials were prescribed during wave 1 of COVID-19 when there was a paucity of literature in this area[1].

Appropriate use of antibiotics in line with antimicrobial stewardship (AMS) principles is important to prevent unnecessary overuse of these medicines, to avoid unnecessary toxicities and to reduce the risk of emergence of resistance.

Methods

Inpatients with SARS-COV-2 PCR positive results reported during second wave of COVID-19 i.e. from 02.08.20 to 14.12.20 were studied. Microbiological samples taken were recorded. The Mann-Whitney test was used to compare differences between the two groups.

An antimicrobial stewardship (AMS) pharmacist clinically reviewed antibiotic use during this time period and actively highlighted appropriate PO switches and antibiotic duration review to the primary medical team.

Data Analysis & Results

A total of 81 patients were assessed in the second wave of COVID-19 versus 117 patients in wave one [See Table 1].

Table 1: Patient antimicrobial details and microbiological sampling

	Wave 1 n= 117	Wave 2 n=81
No. of patients on antimicrobial therapy for respiratory infection	84	67
No. of patients with positive respiratory pathogens	6	7

Comparing wave 1 antimicrobial prescribing (without active AMS review) to wave 2 (active AMS review):

Duration of overall antimicrobial therapy reduced from 7 to 5 days (p <0.0001). See [Figure A]

Duration of IV antimicrobial therapy reduced from 6 to 4 days (p =0.0002).

IV to PO switch of antibiotics occurred more frequently in wave 2; 76 oral switches versus 34 cases in wave 1

Figure A: Wave 1 versus Wave 2 Antibiotic Durations

Duration — **** p<0.0001

IV Duration — *** p=0.0002

PO Duration — p<0.0001 ****
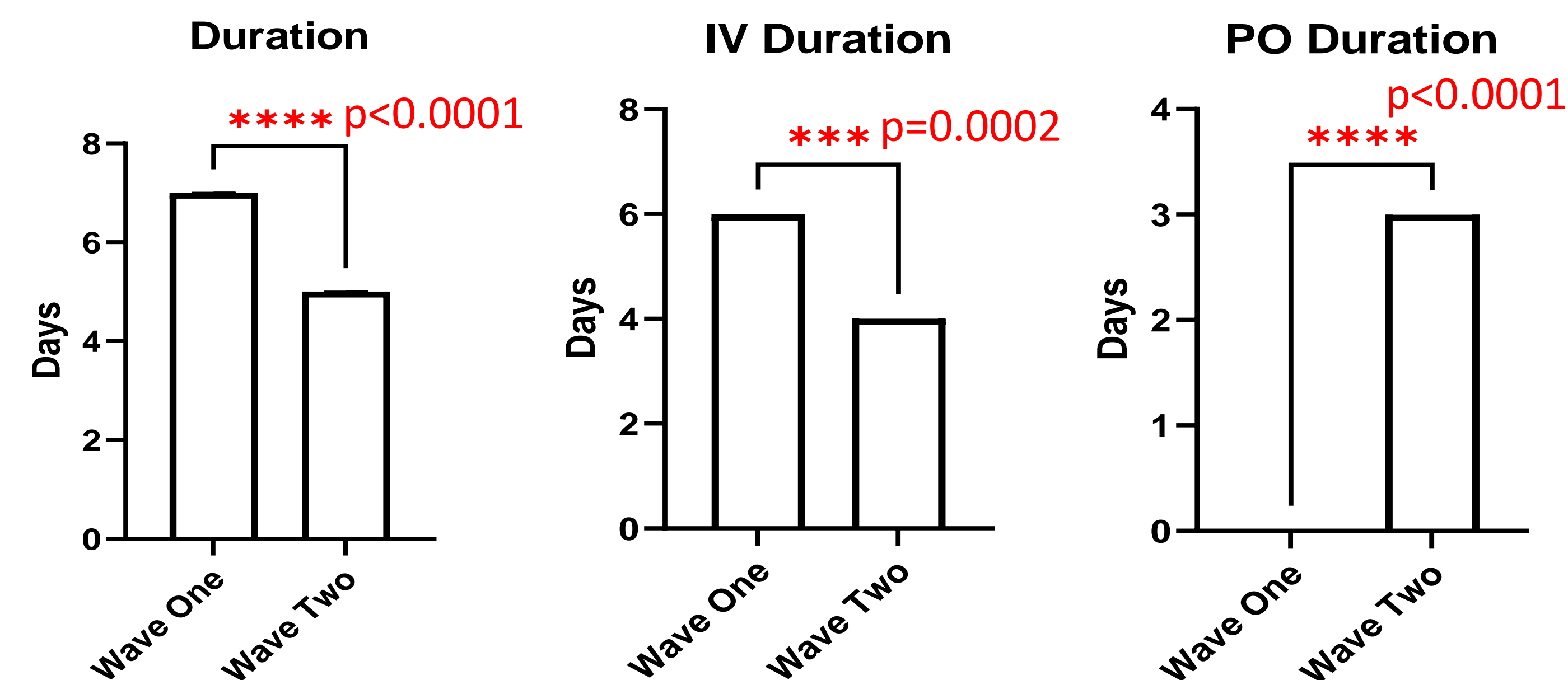
Conclusion

Active antimicrobial stewardship intervention in COVID-19 cases improved metrics for appropriate antimicrobial prescribing. Although overall antibiotic consumption reduced with active AMS intervention the role for continued antimicrobials in these patients of whom there is a low risk of bacterial co-infection needs to be reviewed.

References:
1. Townsend L, Hughes G, Kerr C, Kelly M, O'Connor R, Sweeney E, Doyle C, O'Riordan R, Bergin C, Bannan C. Bacterial pneumonia coinfection and antimicrobial therapy duration in SARS-CoV-2 (COVID-19) infection. JAC Antimicrob Resist. 2020 Sep;2(3):dlaa071. doi: 10.1093/jacamr/dlaa071. Epub 2020 Aug 25. Erratum in: JAC Antimicrob Resist. 2020 Dec 08;2(4):dlaa095. PMID: 32864608; PMCID: PMC7446659.

Department of Pharmacy, St James's Hospital Dublin 8
Róisín O'Connor & Mary Kelly, AMS pharmacists
Email: roconnor@stjames.ie