exceed elective hospital admissions. There is a high burden of care for patient and healthcare provider with the traditional outpatient model. The Covid-19 pandemic necessitated provision of ambulatory care in a different way and should encourage development of a new more patient-centred approach to ambulatory care delivery in ACHD.

Conflict of Interest None

23 AUTO MACHINE LEARNING AND ENSEMBLE APPROACH FOR RIGHT HEART FAILURE SURVIVAL PREDICTIONS WITH PRIMARY PULMONARY HYPERTENSION

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Background Primary pulmonary hypertension (PPH) is an underlying cause of a significant proportion of mortalities attributed to cardiovascular diseases with right ventricular (RV) failure a universally recognized sequela. Various studies have demonstrated the importance of early diagnosis and subsequent initiation of guideline-directed medical therapy as a predictor of RV failure. Therefore, the current state-of-the-art (SOTA) among auto-machine learning (ML) platforms were explored to synthesize models that accurately predict RV failure in PPH.

Methods MLjar is the contemporary SOTA among auto ML platforms for classification tasks. It was incorporated with the ensemble approach (EA) to predict RV failure in a cohort of 516 PPH patients (79% women). The models were developed using the established classification algorithms (both with and without FUT) and compared in terms of F1, MCC, ACC, and AUROC.

Results Upon establishing the training parameters without FUT (model 1), an ensemble of NN and RF algorithms achieved the highest AUROC of 92%, training with FUT (model 2), an ensemble of LR and RF algorithms demonstrated the highest AUROC of 90% while predicting RV failure. The contemporary models outperformed the model developed by Shad et al. in all aspects except the ACC score.

Conclusion The use of the auto ML algorithms and incorporating EA significantly enhances the accuracy and precision of ML models predicting post-PPH RV failure. These models can potentially be incorporated in PPH management protocols to achieve instantaneous risk stratification that could decrease the associated mortality.

Conflict of Interest None

Abstract 23 Table 1

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Median (Range) N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>54 (54%)</td>
</tr>
<tr>
<td>Age at 2019 Appointment</td>
<td>40.4 years (29.7-75.8)</td>
</tr>
<tr>
<td>White British</td>
<td>100 (100%)</td>
</tr>
<tr>
<td>Index of Multiple Deprivation Decile*</td>
<td>4 (1-10)</td>
</tr>
</tbody>
</table>

Diagnostic Group

- Tetralogy of Fallot: 27 (27%)
- Valvular Disease: 22 (22%)
- Aortic Coarctation: 16 (16%)
- AVSD: 10 (10%)
- Systemic Right Ventricle: 8 (9%)
- Fontan: 4 (4%)
- Complex Congenital*: 4 (4%)
- ASD: 3 (3%)
- VSD: 3 (3%)
- Ebstein Anomaly: 2 (2%)
- TGA Arterial Switch: 1 (1%)

Abstract 23 Figure 1

Abstract 23 Figure 2

24 AN EVALUATION INTO THE COMPLIANCE OF IRON TABLETS IN ADULTS WITH CONGENITAL HEART DISEASE AND IRON DEFICIENCY ANAEMIA

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Two patients had pulmonary atresia with ventricular septal defect, both had undergone biventricular repair, one following unifocalisation of major aorto-pulmonary collaterals and the others following shunt surgery. One patient had pulmonary atresia with intact ventricular septum and one had tricuspid and pulmonary atresia. Both were palliated with shunts alone.

Abstracts
Introduction Iron deficiency is the most common cause of anaemia in acquired heart disease. Whilst there is abundance of literature on anaemia in such patients, it is lacking in patients with acquired congenital heart disease (ACHD) and adds to challenges in management. Over a third of patients with hypoxic congenital heart disease are iron deficient but missed due to the lack of microcytosis and hypochromia on blood tests. This is further complicated by questionable patient compliance with oral medication due to its notorious side effect profile, despite its proven benefits in patients with congenital heart disease. Insufficient identification and management can contribute to a three-fold increase in mortality. Therefore, our objectives were to assess compliance with iron tablets and any advice given to encourage continued use.

Methods Our aims were two-fold: 1) Assess compliance rates in taking iron supplements and reasons behind non-compliance 2) Evaluate common side effects experienced and their recall of advice given to minimise this, if any. We identified all ACHD patients seen by cardiologists as inpatient or outpatient in the year 2020, a total of 699 patients. From this, hospital and GP records suggested 53 patients with a history of iron supplementation. We formulated a questionnaire to collect qualitative data assessing the compliance of iron supplements, its side effects profile and advice received in conjunction with NICE guidelines. Reasons for exclusion were no iron supplements on prescription and death.

Results We were able to contact 69.8% of patients (n=53) successfully and 54.7% of the original sample size (n=29) confirmed being on iron therapy and consented to participate in the questionnaire. Our evaluation found a compliance rate of 86.2% (n=25). Reasons for non-compliance were the tablet size being too big, forgetting to take the tablet, polypharmacy and side effects. Whilst 51.7% of patients (n=15) reported improvement in fatigue, 55.2% of patients (n=16) reported side effects (figure 1). For the 16 patients, side effects included constipation (56.3%, n=9), change in stool colour (43.8%, n=7), diarrhoea (6.3%, n=1) and abdominal pain (12.5%, n=2). Around 82.8% (n=24) were unable to recall receiving advice on taking iron tablets (figure 2). Of those that had received advice (n=5), 80.0% (n=4) were advised to take iron with orange juice and 20.0% advised to take it with food.

Conclusion Our compliance rates were higher in comparison to those reported in other studies, which could be explained by improvement in symptoms, awareness of chronicity and severity of their congenital heart disease and resilience of side effects. This would need to be explored further. However, it is evident a large number of patients reported side effects and lack of education to minimise this. Indeed, these results are confounded by limitations including small sample size and recall bias. Despite this, there is room for improvement in maintaining patient education in compliance of iron supplements to minimise mortality and morbidity. We propose small pocket size education cards to educate and encourage patients how to take their iron supplements, minimise side effects and improve compliance.

Conflict of Interest None