We have made huge progress with regards to awareness of HIV, but we must normalise testing in both primary and secondary care to decrease late and unknown HIV diagnoses. ■

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Point-of-care transthoracic echocardiography

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Editor – The point is well made that increased use of computed tomography pulmonary angiography (CTPA) in patients with low pretest probability of pulmonary embolism (PE) might pose unnecessary risk of harm to patients, and might also be an inappropriate use of scarce resources. On the other hand, when pretest probability of PE is sufficiently high, based on the presence of symptoms, ultrasonographically validated deep vein thrombosis (DVT) and D-dimer cut-off levels compliant with those proposed by Tuck *et al*, identification of stigmata of PE by point-of-care transthoracic echocardiography (TTE) might be a satisfactory alternative to CTPA.[1]

The utility of point-of-care TTE as an alternative to CTPA was validated in anecdotal reports involving PE patients with cardiogenic shock or cardiac arrest.[2–5] In all four instances, TTE showed right ventricular dilatation, which, in the context of cardiogenic shock, is highly predictive of PE or its close mimic, right ventricular myocardial infarction, the distinguishing feature of the latter being ST elevation in leads V4R–V7R.[6,7] In all four instances, pre-test probability of PE was enhanced by ultrasonographic documentation of deep vein thrombosis.[2–5] Most crucially, in all four instances, pre-emptive thrombolysis proved to be life-saving.

Stigmata of PE, which can be identified by TTE in haemodynamic crisis include not only right ventricular dilatation but also free floating right heart thrombus and McConnell's sign.[2–5,8,9] In the latter contexts as well, CTPA can be deferred and pre-emptive thrombolysis initiated instead.[8,9]

Alternatively, emergency pulmonary embolectomy might be deployed, as was the case in a haemodynamically compromised PE patient in whom transoesophageal echocardiography showed McConnell's sign as well as impending paradoxical embolism characterised by a thrombus straddling a patent foramen ovale.[10] ■

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The index of suspicion for iron deficiency in non-anaemic subjects

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Editor – A subnormal level of either the mean corpuscular haemoglobin (MCH) or the mean corpuscular haemoglobin concentration (MCHC) could be the first sign of iron deficiency without anaemia (IDWA). The underlying reason for this phenomenon was identified in a study of 219 female athletes aged 15–20 years. What emerged was that, during the progression from the status of normal iron stores (defined as serum ferritin $\geq$30 µg/L) to iron deficient status (defined as serum ferritin $<$30 µg/L) the fall in MCH and MCHC antedated the fall in mean corpuscular volume (MCV), with the consequence that a stage was reached where iron deficient subjects had mean values of MCH and MCHC that were significantly lower ($p<0.001$) than the levels of those parameters in their iron replete counterparts, despite the

fact that mean values for MCV remained the same for both the iron deficient subgroup and the iron replete subgroup. Also among subjects who had progressed to iron deficiency, the mean value for haemoglobin (Hb) was 132.7 g/L vs 139.2 g/L in the iron replete subgroup.[1] In a study where iron deficiency was defined as serum ferritin of ≤30 µg/L in men and ≤20 µg/L in females, or transferrin saturation as ≥20% or reticulocyte haemoglobin as ≤28 pg, there were 770 subjects with IDWA. Among them were 463 who had MCH amounting to ≤28 pg vs 209 with MCV of ≤80 fL.[2] Accordingly, given the fact that MCH of ≥28 pg is more prevalent than MCV of ≤80 fL in IDWA subjects, a MCH of <28 pg should be a *red flag* for IDWA, prompting further investigation along the lines proposed by Al-Naseem *et al*.[3]

The recognition of IDWA has implications for correction of incident iron deficiency and for identification of its underlying cause. Correction of incident iron deficiency (regardless of Hb level) is a matter of urgency in patients with congestive heart failure (CHF). In Wienbergen *et al*, where iron deficiency was defined as serum ferritin <100 µg/L or 100–299 µg/L in association with transferrin saturation <20%, predicted mortality in CHF subjects with IDWA was significantly greater (p=0.002) than in CHF subjects without iron deficiency.[4] Furthermore, among CHF patients in whom iron deficiency has been defined according to the criteria cited by Al-Naseem *et al*, treatment with intravenous iron improves symptoms, functional capacity and quality of life irrespective of presence or absence of anaemia.[3,5] The rationale for these outcomes might be the one that comes from animal studies.[4–7] In one study, IDWA was shown to be responsible for decreased left ventricular function and reduced mitochondrial complex 1 activity in mice.[6] In another murine experimental model, deficiency of transferrin in heart muscle was shown to lead to lethal cardiomyopathy.[7]

Also, of some importance is the identification of the underlying cause of IDWA. In the meta-analysis undertaken by Chan *et al* (five studies), 13 gastrointestinal malignancies were identified in 3,329 participants. Prevalence of gastrointestinal malignancy in those with IDWA was predominantly in the age group of >50 years with little risk in younger age groups. Overall, the number needed to endoscope (to discover one case of malignancy) amounted to 263. When stratified according to age, number needed to endoscope amounted to 39 in those aged ≥50 years.[8] In a separate study (a retrospective analysis not included in the previous meta-analysis), among 287 CHF patients of mean age 70 years with IDWA, 30 were diagnosed with gastrointestinal malignancies.[9] In the latter study, anaemia was defined as Hb <12 g/dL in both men and women, and iron deficiency was defined according to the criteria cited by Al-Naseem *et al*.[3] In that study, serum ferritin <30 µg/L had a specificity of 90% for generating a positive endoscopy result but this was at the cost of poor sensitivity (13%), in other words, at the cost of rejecting many potential candidates for endoscopy simply because they had higher serum ferritin values. Conversely, a serum ferritin cut-off level of <100 µg/L had higher sensitivity (93%) in identifying potential candidates for endoscopy but at the cost of a higher ratio of 'numbers needed to endoscope' (ie lower specificity, amounting to 31%) for obtaining a positive endoscopy result.[9]

In conclusion, the emerging picture is that of a compelling urgency to identify IDWA in patients with CHF because of its adverse effects on prognosis, and because those adverse effects can be mitigated by treatment. There is a compelling need to identify the underlying cause of IDWA in subjects aged ≥50 years but not such a compelling need in younger subjects. ■

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COVID-19 multidisciplinary working group

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Editor – We write in support of the process outlined by Satta *et al* in their recent commentary which explored the methods for creating an expert multidisciplinary team (MDT) to support decision making and governance around therapeutic options during the COVID-19 pandemic.[1]

Within our own organisation, a large district general hospital, we established a similar COVID-19 oversight group (COG) by mid-April 2020, drawing in multiple experts, like those reported by Satta *et al*. We developed the trust-wide guidelines for managing COVID-19 and maximised the delivery of clinical trials, overseeing study outcomes with early implementation of efficacious treatments through this group.

During the COVID-19 pandemic, up to 10 May 2021, our organisation recruited 5,431 participants into research studies of which 6% (n=333) were recruited to interventional trials including RECOVERY (n=222) and REMAP-CAP (n=15).[2,3]

The COG was also able to review, through weekly virtual meetings, the outcomes from various research studies and interim position statements released from the department of health. Various novel therapeutic agents were implemented into updated guidelines