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AN UNUSUAL GASTROINTESTINAL COMPLICATION FOLLOWING HEART TRANSPLANTATION.

Editor,

A 29-year-old man underwent uncomplicated cardiac transplantation for advanced heart failure secondary to hypertrophic cardiomyopathy. Nine days post-operatively he required aggressive escalation of immunosuppression for 3 days with methylprednisolone due to an episode of severe cell-mediated rejection which promptly resolved. A routine chest radiograph a further 6 days later unexpectedly demonstrated free sub-diaphragmatic air. On subsequent assessment he admitted to only very mild abdominal discomfort. On examination his abdomen was distended and tympanic with active bowel sounds and no signs of peritonism. Inflammatory markers and lactate were normal. Due to concern regarding the possibility of gastro-intestinal perforation secondary to high dose steroid therapy an abdominal CT scan was undertaken. This confirmed the presence of pneumoperitoneum and also demonstrated extensive gaseous infiltration of the bowel wall and the omentum from the caecum extending as far as the distal descending colon with sparing of the sigmoid (Figure 1a and b) in keeping with a diagnosis of pneumatosis intestinalis. There was no radiological evidence of bowel ischaemia. Cytomegalovirus was not detected in blood or faeces. He was managed conservatively with 5 days of intravenous amoxicillin and metronidazole with complete resolution. He remains well 1 year later.

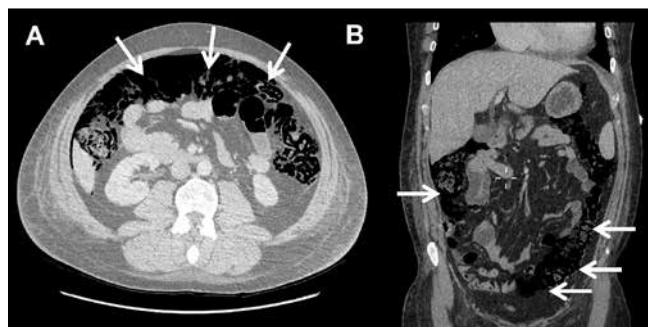


Fig 1. Axial (1A) and coronal (1B) views from a contrast computed tomography scan of the abdomen demonstrating extensive pneumatosis intestinalis of the large bowel. The dark areas (arrowed) represent extensive submucosal gas.

Pneumatosis intestinalis is a radiological diagnosis and occurs when the gastrointestinal wall becomes disrupted and infiltrated by intra-luminal gas¹. It can have a benign or life-threatening course, largely dictated by the underlying aetiology, and has a reported association with a variety of conditions including bowel ischemia, intestinal obstruction,

inflammatory bowel disease, connective tissue disorders and chronic obstructive pulmonary disease². It is best diagnosed with CT and has rarely been reported following renal, lung and liver transplantation² and even less so following heart transplantation³. It has been speculated that pneumatosis intestinalis in the post-transplant setting may be related to multiple effects of immunosuppression including hyperactivity of the colonic flora as well as steroid-induced atrophy of Peyer patches and the gastro-intestinal mucosa with consequent invasion of the submucosa by intra-luminal gas⁴. From the limited literature regarding post-transplantation pneumatosis intestinalis, the large bowel seems to be more commonly affected than the small bowel and the majority of cases fully resolve with careful monitoring and conservative management alone^{3,5}. Our patient had required prolonged treatment with high dose methylprednisolone due to an episode of allograft rejection which was the likely a major causative factor. This case reduces the paucity of literature on a rare complication of heart transplantation. It appears to be associated with a benign course in the majority of cases; however, care must be taken to exclude the coexistence of more malignant processes underlying this presentation, such as cytomegalovirus related colitis, in post-transplant patients.

Keywords: heart transplant, immunosuppression, pneumatosis intestinalis

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BIRTH RATE MAY INCREASE NINE MONTHS AFTER NATIONAL FOOTBALL SUCCESS

Editor,

We noted an increase in referrals to prenatal genetic clinics



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TABLE 1:

FIFA World Cup and UEFA Euros start and finish dates with corresponding expected due date (E.D.D), 2006-2017.

	Tournament start	Tournament finish	E.D.D start	E.D.D finish
FIFA World Cup	12/06/2014	13/07/2014	05/03/2015	05/04/2015
	11/06/2010	11/07/2010	04/03/2011	03/04/2011
	09/06/2006	09/07/2006	02/03/2007	01/04/2007
UEFA Euros	10/06/2016	10/07/2016	03/03/2017	02/04/2017
	08/06/2012	01/07/2012	01/03/2013	24/03/2013
	07/06/2008	19/07/2008	28/02/2009	11/04/2009

after large sporting events such as the UEFA European Championship (Euros) and World Cups. Few reliable studies are reported, although birth spikes nine months after events are described in South Africa after they hosted the 2010 FIFA World Cup¹, the USA Super Bowl championship² and following a last-minute goal by Barcelona in the 2009 UEFA final³.

We examined live birth rates nine months after the six UEFA Euros and FIFA World Cups, between 2006-2017⁴. The expected due date (E.D.D) of births, conceived during the period, was calculated as 38 weeks following the beginning and end of the tournaments, assuming births at ~40 weeks gestation. The tournaments occurred in June - July, so the E.D.D range corresponds to the following March (Table 1). We compared live births in March, as a proportion of total births for the corresponding year, with the average birth rate in the contiguous February and April, using chi-squared analysis.

RESULTS

Birth rates for the following March ranged from 1,780 to 2,113 (7.3% to 9.2% as a proportion of total births for each corresponding year). Average birth rates for February and April combined, ranged from 1,930 to 1,873 (7.2% to 8.1%) (Table 2).

We observed no significant difference in the proportion of live birth rates between 2007 – 2015, however, a statistically significant increase in births was noted in March 2017, nine months after the 2016 UEFA Euros Championship, compared with the contiguous February and April (2% (0.516 to 3.549), p 0.008) (Table 2). 2016 was the first occasion when the Northern Ireland (NI) football team qualified to compete in the UEFA Euros tournament and the team achieved relative success, reaching the second stage.

We postulate that the increase in birth rate nine months after NI's first appearance in the UEFA Euros may be the result

TABLE 2:

Comparison of proportionate births in March and February/April, corresponding to the E.D.D for conceptions occurring during World Cup and UEFA Euros tournaments (2007-2017).

Year	March births ^a % (n)	Average February/ April births ^b % (n)	Difference in births (%) March v. February/April	p. value ^c	95% Confidence Intervals ^c
2017 [^]	9.2 (2,113)	7.2 (1,658)	2	0.008	0.5136 - 3.5493
2015 [*]	8.1 (1,966)	7.7 (1,873)	0.4	0.593	1.0399 - 1.9231
2013 [^]	7.3 (1,780)	8.1 (1,930)	0.8	0.298	0.7353 - 2.2324
2011 [*]	8.6 (2,181)	7.3 (1,856)	1.3	0.072	0.1136 - 2.7810
2009 [^]	8.4 (2,086)	8.1 (4,023)	0.3	0.685	1.1229 - 1.8014
2007 [*]	7.9 (1935)	7.7 (3,765)	0.2	0.789	1.2340 to 1.7202

- a. March births (%) calculated as a proportion of total births for the corresponding year.
 b. Average of February and April births, calculated as a proportion of total births for the corresponding year.
 c. P-values and 95% Confidence intervals calculated using chi-squared test.
 ^ Year corresponding to a conception during a UEFA European Championship.
 * Year corresponding to a conception during a FIFA World Cup Championship.



of a potent combination of national excitement, enthusiastic fervour, celebration and inebriation.

Although there are few existing studies looking at the relationship between sporting events and birth rates, our findings are consistent with the South African World Cup, the USA Super Bowl and Barcelona UEFA reports¹⁻³. Mechanisms by which large sporting events influence reproductive behaviour are complex. Increased alcohol consumption, disinhibited behaviour and a sense of well-being as a result of national pride and excitement, may play a role. The association between the March 2017 birth rate in Northern Ireland and the timing of the 2016 UEFA Euros tournament does not prove causation and there may be other factors such as seasonal light and temperature variations and no significant rise in birth rate was noted following the other five football tournaments that we examined.

Future research may look at other sporting events (e.g. Olympics, Rugby World Cup). Any impact on reproductive behaviour may depend on which national team is competing and the degree of their success within the tournament. Following the relative success of England in the 2018 World Cup, we may see a spike in "World Cup babies" in March 2019.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare

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ASSESSMENT OF HYPONATRAEMIA IN ACUTE MEDICAL PATIENTS

Editor,

Hyponatraemia is defined by a sodium level of less than 135mmol/L and is the commonest electrolyte abnormality,

occurring in 15-20% of hospital patients¹. It has also been identified as an independent predictor of mortality and is associated with severe complications such as cerebral oedema^{2,3}. Despite this, the management of hyponatraemic patients has been poor^{1,4}.

The aim of our study was to evaluate the assessment of hyponatraemia in newly admitted hospital patients.

METHODS

Our study was a retrospective data collection analysis. Using data provided by the Biochemical laboratory at a South London hospital, we analysed patients that were admitted to their Acute Medical Unit with sodium levels below 133mmol/L (the trust's definition), across July and August 2017. Patients were excluded if their hyponatraemia developed after their Post-take ward round or if it was in the context of a hyperglycaemia (>20mmol). We separated patients by severity of their hyponatraemia – mild 130-133, moderate 120-130 and severe <120 - then further analysed data within these groups. Our analysis focused on the period between the patient's admission clerking notes and their post-take ward round notes – however we did look further in their notes to look at whether they had been admitted to ITU in that respective admission.

RESULTS

Our study revealed that 101 patients were admitted to AMU with hyponatraemia during the July-August 2017 period. 53/101 (52%) patients had their glucose checked. 2/53 were revealed to have a glucose level of above 20mmol/L and therefore had pseudohyponatraemia. We have excluded these two patients from further analysis. For the new patient group of 99 patients: 36 had mild hyponatraemia (130-133mmol/L), 51 had moderate hyponatraemia (120-130mmol/L) and 12 had severe hyponatraemia (<120mmol/L)

Reassuringly, all patients with severe hyponatraemia had this documented in their notes (12/12 100%), followed by the moderate category with 34/51 (67%), and the mild with 10/36 (28%). However, there was no such relationship between severity and volume assessment. Only 34% of patients had a volume assessment in the context of their low sodium (mild 28%, moderate 31%, and severe 67%).

Urinary sodium was poorly requested in the mild and moderate categories (0% and 7.8% respectively). Although, in severe hyponatraemia 75% of patients had a urinary sodium test requested. For good practice, it is recommended to check glucose levels AND request a urinary sodium in all patients presenting with hyponatraemia. This occurred in 7% of patients (including 2 excluded earlier). The majority of these patients (4/7) had severe hyponatraemia.

4/99 patients had their care escalated to the intensive care unit eventually at some point during their admission. However none of these patients were admitted with severe hyponatraemia.



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