Read all about it... It can be awkward when a patient asks you about a report in their favourite tabloid detailing an amazing research breakthrough or a 'cutting-edge' new treatment / test and you don't know what they are talking about! So this section fills you in on the facts.

COVID-19 found in semen of infected men, say Chinese doctors

The Guardian – 7 May 2020

The Guardian reports on news coming out of China at the tail-end of the coronavirus epidemic (or at least the first wave of it). A team of doctors at Shangqiu Municipal Hospital tested 38 men who were admitted with proven Sars-CoV-2 infections. They found that semen samples in 16% of those men tested positive for Sars-CoV-2. As with all things COVID-related at the moment, further information is just not available yet. However, this along with other snippets of information, does raise a lot of interesting (and concerning) questions.

The finding from this small Chinese study is not wholly unexpected. It has been understood from the outset of the pandemic that the virus seems to have a predilection for angiotensin (ACE2) receptors, which are present in abundance in Leydig cells. Indeed, following the previous SARS outbreak in 2003, there were reports of 'orchitis' developing as a complication of the condition and a characteristic histological finding within the testis of germ cell destruction and virtually absent spermatozoon. Thankfully, there does not really appear to have been any mass outbreak of COVID-related orchitis in the last few months. The only documentation I could find to suggest this as a clinical possibility was a report in the *New England Journal of Emergency Medicine* regarding a male patient who was admitted purely with testis and groin pain and then a few days later, developed symptomatic COVID. My hospital was pretty severely affected (I'm now an expert in 'proning' ventilated patients) and for all the hundreds of COVID patients we admitted – not a single call about a sore testicle. Yet, 16% of men in this study had a 'positive' semen sample.

This finding from China strongly suggests that it may be possible for COVID-19 to be sexually-transmitted, but to be fair – if you are jumping into bed with somebody stricken with coronavirus, you are probably going to get it via the normal route several minutes before the potential STI route. The thing that is perhaps more concerning is that maybe around 1 in 10 men affected by COVID-19 could be quietly having some sort of testis involvement and nobody knows whether there may be any long-term sequelae or effects from this. Hopefully, it won't be a 'Children of Men' scenario, but it's not inconceivable that the virus could potentially impact fertility in affected men or could even predispose to future testis cancer. Obviously, we don't know that it will either.

Are more men dying from coronavirus because of testosterone?

The Daily Mail – 23 May 2020

It is a known fact that men are more frequently hospitalised with COVID-19 than women (in a ratio of close to 2:1 in the older population) and appear to be more profoundly affected in terms of disease severity. Yet, despite this being the 'new normal' for the past few months, there is no clear explanation for why this is the case. Yes, one could speculate all day as to possible cause and likely devise a number of possible factors which could theoretically play into it, but it's hard to ignore the 'elephant in the room' – testosterone.

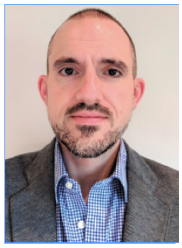
This *Daily Mail* article comes off the back of an Italian publication in 'Metabolism' journal which has probed and questioned the links between COVID-19 and testosterone in the wake of some data coming through that seems to suggest that men on hormonal deprivation therapy (for prostate cancer) seem less likely to succumb to COVID-19. Indeed, Phase II trials are now underway to examine whether high-dose bicalutamide may be a useful adjunct in the management of acute COVID-19 infection.

So, the question is – what is the link? The other article sited in this issue's 'Read All About It' mentions that ACE2 receptors are a binding site for coronavirus, however another receptor that COVID is keen on is 'TMPRSS2'. Those of you with a fantastic memory will recall this trans-membrane serine protease being mentioned in relation to prostate cancer research in a previous issue. It was not overly interesting then, but suffice to say that TMPRSS2 expression is modulated by testosterone.

It is theorised that very high testosterone levels could account for young male COVID-19 infections through more receptors being present. The waters are fairly muddy though, as many older men develop a degree of hypogonadism – how does this play into the high mortality rate in older men with COVID (other than their frailty and co-morbidities). Testosterone plays a large role in suppressing pro-inflammatory cytokines. We have all heard about the inflammatory 'cytokine storm' in COVID-19 patients, it seems possible that testosterone may help suppress this and hypogonad men may therefore be at a greater risk of this condition. We then have to wonder if testis involvement in COVID-19 infection (as detailed in the other story in this issue) could have an effect of lowering testosterone levels in COVID-19 and make the condition worse?

Clearly, there is a great deal still unknown on the COVID-19 front. What I don't think any of us would have foreseen though, is just how close to our urology 'home' a viral pneumonia pandemic would strike.

SECTION EDITOR



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