Peer Review File

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Reviewer A

Your manuscript reports on an institutional experience with priapism management. A number of observations were made. These do offer insight with regard to the topic area. Please address the following concerns.

1. You state a premise that there is a comparative analysis of clinical management between urologists and emergency medicine physicians. This is stated right at the beginning abstract as well. However, this matter is of less relevance than the characteristics of late presentations or referral presentations. Thus, characteristics of the clinical presentations are most relevant. This aspect should be emphasized more clearly throughout the manuscript, in particularly in the conclusions section.

Reply 1: We agree with the reviewer as our intention was to characterize the population presenting to our institution with priapism and then to further understand the differences in patients managed by urology compared to the managed by EM physicians. We identified that the patients managed by EM physicians had shorter durations and/or had been previously managed by urology (potentially less complex).

Changes in the text: N/A

2. The major consideration is whether the cause of the priapism should be the focus of management considerations. Specifically, priapism that results from penile injection therapy should involve a distinct management approach, different from recurrent priapism of sickle cell disease, for example. These distinctions should be described more clearly as well. Please comment.

Reply 2: The authors agree with the sentiment of the reviewer as even the new updated AUA guidelines focus on a change in treatment in patients who present with priapism secondary to penile injection therapy. However due to the retrospective nature of this paper, along with the multiple providers using different methods of management, the distinctions are not made a priori. We sought to capture real-world management to understand what is being reflected in management now, to determine if there are areas that could be improved – of which one area could be in the creation of a protocol that distinguishes treatment based on etiologyl

Changes in text: N/A

3. With respect to methodology, you mentioned that ICD-10 codes were used. However, this was stated vaguely. Actual codes and their definitions would be helpful to the reader here. This becomes an issue with regards to how determinations are made among presentations of priapism in particular. You describe “stuttering” priapism without a definition until much later in the manuscript so that the reader may have questions as to how this determination was made. Please comment.

Reply 3: Thank you, the paper has been updated accordingly.

Changes in text: We included ICD-10 codes for clarification (Page 4, Lines 8-9 as well as Page

4, Line 13 footnote)

This dataset is used internally by residents and attendings and therefore does not include billing information.

ICD-10 codes included Priapism [N48.3] OR Priapism, unspecified [N48.30] OR Priapism due to disease classified elsewhere [N48.32] OR Priapism, drug-induced [N48.33] OR Other priapism [N48.39] OR Priapism due to trauma [N48.31] OR Priapism [607.3]

4. With regards to your description of "injection", it would be helpful for the reader to be clear as to what medication or perhaps class of medications is intended here. One can only presume you are referring to alpha-adrenergic medications. Again, this is unclear without further detail.
Reply 4: Agree with the reviewers in specifying this aspect of management to minimize confusion.
Changes in text: We provided clarification with medication type (Page 9, Line 12-13).
Note that injection reflects the injection of phenylephrine, the alpha-adrenergic medication available at our institution.

5. On page 11, you mention that pseudoephedrine is an adrenergic antagonist. This is incorrect.
Reply 5: Thank you, the paper has been updated.
Changes in text: We corrected this mistake (Page 11, Line 19).
"adrenergic agonist (pseudoephedrine)"

6. Looking at the reference section, this apparently was done sloppily and is incomplete. Please address.
Reply 6: Thank you for the thorough review of the references. The references have been reformatted according to the guidelines.
Changes in text: We have updated the references to be in line with guidelines (Page 13-15).

This manuscript needs a lot of work. There is little novel information here. The most important messages are not clearly presented. It need significant improvement with clarity and thoroughness

Reply: We appreciate the reviewer's time, insight and feedback on the paper. Though the findings from a cohort of patients with priapism may not be novel (i.e. recurrent ischemic priapism patients can lead to repeat ER visits), we believe that there are truly novel findings in the following;

1. The small percentage of patients that are responsible for a majority of visits for priapism; these statistics are not well established in current data as current data relies on insurance based data that sometimes cannot distinguish between individual/repeat patients
2. The differences in management by EM physicians and urology physicians in a real-world setting

   Furthermore, in an area that is poorly understood, the authors feel that additional data provided within this study adds to the existing literature in hopes to better understand

this clinical entity

Changes in text: N/A

Reviewer B

Priapism is rare, poorly understood and poorly funded condition and more research adding to the body of the work is required. From the manuscript, I am unclear what the actual key aims of this retrospective study are and would be grateful if the author could clarify.

Reply: Thank you for your comments. Our key aim was to better understand this population in a real-world setting. We sought to characterize this patient population and understand the management of these patients by both urology and emergency medicine.

This is in contrast to larger datasets that make it difficult to understand what happens at the individual patient level, for example, who are the repeat patients. In addition, it is not often clearly distinguished who is managing the patient, i.e. urology vs. emergency medicine.

Change in text: N/A

Emergency medicine managed some of the patients with SCD Stuttering priapism and discharged them without specialist input from Urology/Haematology. Do you think this is appropriate? These are the most complex patients in the cohort and they likely require hyrodxyurea or exchange transfusions and input from Urology to prevent further episodes and damage.

Reply: This is a retrospective study and therefore aims to accurately reflect what happened and not whether or not we agree with the management. We intended to characterize practice patterns at our institution. In addition, hydroxyurea or exchange transfusions are not commonly recommended by adult hematology at our institution.

Change in text: We commented on variations in practice (Page 9, Lines 13-15).

Patients who were managed by EM at the hospital were often seen by Urology as an outpatient. However, there are social determinants of health that make outpatient urologic care difficult achieve and it is important that patients can receive necessary care from EM providers.

Non-ischemic priapsim made up a larger than expected proportion (14%) of the cohort - Why do you think this is? How was this diagnosed?

Reply: We agree it was a higher portion of the population than expected, however the exact reasoning is unknown – can be related to conversion from ischemic to non-ischemic from prior shunts and/or related to trauma. It was diagnosed via penile blood gas.

Change in text: We added a sentence to indicate that this rate was high and our thoughts on this (Page 11, Line 16-19).

The rate of non-ischemic priapism was higher than anticipated (14% in this study compared to 5% in prior studies(21)). This may be due to cases that were previously managed and converted from ischemic priapism to non-ischemic priapism at time of presentation.

Try to use consistent terminology - non-ischemic priapism instead of high-flow priapism and

recurrent ischemic instead of stuttering.
Reply: We agree with the reviewer that the consistency provides benefit to the reader and minimizes confusion.
Change in text: Changed in multiple locations to reflect updated language.

Of those patients requiring surgery, more than expected had a proximal shunt. Proximal shunt is no longer recommended in the AUA or EAU guidelines. How was informed consent regarding this taken? Please could you comment
Reply: This cohort was evaluated during the time where the AUA guidelines had not been modified (The change was recent 2021). The informed consent process was not specifically evaluated as an outcome therefore specifics are not able to be provided, however assumption is made that informed consent occurred according to protocol.
Change in text: We commented on the change in guidelines (Page 6, Line 19-21).
Of note, though current AUA guidelines recommend counseling patients on the inadequate evidence on the benefit of proximal shunts, this data was obtained prior to the change in guidelines.

It appears that no patients had refractory ischemic priapism requiring penile prosthesis insertion which would be unusual in a cohort of this size. Please could you comment.
Reply: There are patients that later underwent penile prosthesis insertion however the data that was obtained was in the acute period and within this institution, penile prosthesis are typically not placed immediately but rather after a few days to weeks as there is no standard defined time for optimal placement of a penile prosthesis.
Change in text: We added a sentence to reflect variations in practice (Page 12, Lines 21-23).
For example, some institutions may pursue penile prosthesis immediately in the setting of ischemic priapism, but this was not captured in our data as it represents the acute period

You comment that some of the transferred patients converted from ischemic to non-ischemic priapism and therefore did not require further intervention. Was this initially misdiagnosed or had the patients had an intervention that had resulted in non-ischemic priapism?
Reply: We agree with the reviewers that this is a question that our paper does not answer. We are not able to access outside medical records in order to better understand the priapism workup, instead based our data on information provided to us. There were multiple patients who were transferred to us with the diagnosis of ischemic priapism but were found to be non-ischemic on presentation to our institution.
Change in text: We added a sentence to indicate we do not have this information (Page 10, Lines 19-20).
It is unclear whether these patients were initially misdiagnosed or if they truly converted as there was limited access to outside medical records.