

Medical Management of Sexual Assault Survivors at an Academic Medical Center

Sadaf Rowshanrad¹, Jamie Kneebusch², Sally Rafie³ *

1. PGY1 Pharmacist Resident Providence Saint Joseph Medical Center
2. PGY-1 Pharmacy Practice Resident VA San Diego Healthcare System
3. UC San Diego Health

Abstract

Sexual assault is a serious problem in the United States. It is crucial that the medical management of these patients is adequate. The Centers for Disease Control and Prevention (CDC) provides guidelines for appropriate management of these patients. The purpose of this study is to evaluate medical management of survivors of sexual assault at an academic medical center and identify opportunities for improvements in care. We conducted a retrospective, chart review study of patients aged 12 years and older presenting at an academic medical center following sexual assault or rape between 2009 and 2013. Descriptive statistical tests were used to analyze the data.

A total of 29 females and 5 males were identified. The majority of patients presented to the medical center within 24 hours of sexual assault or rape and typically presented to the emergency department. Empiric treatment for infections were 8.8% for Hepatitis B, 29.4% for human immunodeficiency virus, 20.6% for gonorrhea, 17.6% for chlamydia, and 8.8% for trichomonas. Among women of reproductive age, 28.0% were provided with emergency contraception.

This study found inconsistency in the medical management of sexual assault survivors. Among this small sample size, many patients were not provided with recommended medical treatments. With this knowledge, the medical center plans to implement institutional guidelines and a corresponding order set in the computerized prescriber order entry system to standardize the medical management of sexual assault survivors and educate healthcare professionals. Future studies are warranted to evaluate the impact of standardized guidelines and order set implementation.

Corresponding Author: Sally Rafie, Pharm.D, Pharmacist Specialist, UC San Diego Health, 200 West Arbor Dr. #8765, San Diego, CA 92103, (619)543-3601, **Email:** srafie@ucsd.edu

Keywords: Rape; Sexual assault; Emergency contraception; Post-exposure prophylaxis; Emergency department; Sexually transmitted diseases

Received Nov 15, 2015;

Accepted Nov 02, 2016;

Published Dec 15, 2016;

Introduction

Sexual assault is a significant problem in the United States. It is reported that nearly 1 in 5 (18.3%) women and 1 in 71 men (1.4%) experience rape in their lifetimes [1]. Sexual assault is one of the most under-reported crimes with an estimated 68% of events remaining unreported [2]. A study showed an estimated 143,638 ED visits for sexual assaults in year 2001 to 2002 [1]. The amount of people visiting EDs for sexual assault indicate the importance of proper medical management to prevent potential sexually transmitted infections and pregnancy, if applicable.

The majority of sexual assault survivors do not receive sufficient care in accordance with national treatment guidelines [3,4]. In 2003, a National Hospital Ambulatory Medical Care survey database revealed that appropriate antibiotic prophylaxis was only provided in 6.7% of post-assault visits [3]. Untreated sexually transmitted diseases could lead to short and long-term serious complications, such as chronic pelvic pain and infertility. Appropriate medical management could prevent both short and long-term complications. Similarly, another study revealed that only 20% of women were given emergency contraception to prevent pregnancy post sexual assault [5]. A study reviewing HIV post exposure prophylaxis found out that only half of the survivors received HIV post exposure prophylaxis [6].

The US Centers for Disease Control and Prevention (CDC) provides recommendations for the treatment of sexual assault survivors [7]. Many of the recommended treatments would be best administered at follow up appointments where a confirmed diagnosis could be obtained. However the likelihood of follow up is about 30% therefore CDC recommends administering most of the treatments empirically (i.e., without confirmation of disease) [8]. Empiric treatment is indicated for the most commonly diagnosed sexually

transmitted diseases (STDs). Including gonorrhea, chlamydia and trichomonas [9,10]. Treatment for these include a series of antibiotics and antifungals, administered prophylactically. Emergency contraception should also be provided to females of reproductive age. Additionally, a complete Hepatitis B vaccination series should be administered if the patient has not been vaccinated or vaccination status is unknown. Post exposure administration of the Hepatitis B vaccine series can prevent infection [7]. Lastly, human immunodeficiency virus (HIV) prophylaxis is recommended as long as there is a significant risk to the patient. After determining the likelihood of the assailant being HIV positive and transmitting the disease to the patient, then post exposure prophylaxis (PEP) can be initiated. Though its efficacy has only been studied in health-care workers, it was extrapolated from the data that it would be effective in treating other mechanisms of exposure, such as sexual assault [7].

This study provides information on HIV and Hep B post exposure prophylaxis, appropriate antibiotic therapy for STD prophylaxis, and use of emergency contraception to prevent pregnancy in sexual assault survivors. The study aims to identify opportunities to improve care by assessing the current medical management of sexual assault survivors in an academic medical center. The study also evaluated the treatment provided and its compliance with CDC national treatment guidelines for survivors of sexual assault.

Methods

This study is a retrospective, chart review of patients presenting post-sexual assault at UC San Diego Health (UCSDH) between January 1, 2009 and December 31, 2013. The study was reviewed and approved on March 2014 by the UCSD Human Research Protections Program Institutional Review Boards.

In this study we evaluated patients seen at UCSDH with ICD-9 codes pertinent to sexual assault. These codes were determined using the Center for Medicare & Medicare Services (CMS) website and searching for codes relating to the words sexual, venereal, rape, emergency contraception and vaccination [11]. The codes were then picked based on the relevance to the study design. The ICD-9 codes that were chosen are: 995.53 – child sexual abuse; 995.83 – adult sexual abuse; V65.45 – counseling on other sexually diseases; V74.5 – screening examination for venereal disease; V01.6 – contact with or exposure to venereal diseases; E960.1 – rape; V71.5 – observation following alleged rape or seduction; V25.03 – encounter for emergency contraceptive counseling and prescription. These codes were used to generate a report of patients from the electronic medical record system. Inclusion criteria included patients Age \geq 12 years, with an outpatient including ED, or inpatient encounter between January 1, 2009 and December 31, 2013. Patients for

whom data was unavailable in the electronic medical record systems were excluded.

The reports were used to conduct chart reviews and collect data on the provision of appropriate sexual assault medications. Data were recorded in a Microsoft Excel spreadsheet and each patient was assigned a subject number. Data exported or collected included medical record number (MRN), relevant ICD-9 codes, encounter type, location, demographics (age, sex, race), time post-sexual assault, sexual assault medications provided, and time of administration of medications.

Descriptive statistical tests in Excel were used to analyze the data.

Results

Between January 1, 2009 and December 31, 2013, there were a total of 34 patients, 29 women and 5 men identified with a relevant diagnosis code. The patient characteristics are listed in Table 1. The median

Table 1. Summary of patient demographics

Characteristic		n (%)
Age	17-18	2 (5.9)
	19-25	8 (23.5)
	26-35	9 (26.5)
	36-50	10 (29.4)
	>50	5 (12.7)
Race	White	24 (70.6)
	Black	3 (8.8)
	Asian	3 (8.8)
	Other	3 (8.8)
	Unknown	1 (2.9)
Hours to present	<24	22 (64.7)
	25-72	5 (12.7)
	73-120	3 (8.8)
	>120	2 (5.9)
	No Data	2 (5.9)
Presenting Location	ED	18 (52.9)
	Primary Care Clinic	7 (20.6)
	Specialty Clinic	1 (2.9)
	Hospital	8 (23.5)

This table shows the demographics of the sample population based on age and race. The hours to present to the medical center following the assault and the presenting location are also included.

age was 32. Survivors presented anywhere within 24 hours or more following sexual assault. Nearly 53% of the patients presented to the emergency department (ED). The remaining patients presented to various locations, including being directly admitted to the hospital, visiting their primary care physician or presenting to a specialty clinic, such as the HIV clinic (Table 1).

All patient charts were evaluated for the use of the CDC recommended treatments for sexual assault, including the administration of emergency contraception (EC), the Hepatitis B vaccine (if needed), HIV prophylaxis, and antibiotics for the treatment of chlamydia, gonorrhea, and trichomonas. Women up to age 50 were considered reproductive age and candidates for the administration of EC. Therefore the results are reported for women up to age 50, women above the age of 50, men, and total in Table 2. HIV prophylaxis was further evaluated into the regimen that is recommended by the CDC and all other regimens. Out of the 34 patients, 24 received no HIV prophylaxis, 1 patient received a non-CDC approved regimen and 9 patients received CDC approved regimens.

Discussion

The majority of the patients in the study were female. However, it was beneficial to have men included in the study to accurately assess the treatment of men in the case of sexual assault. Additionally, though the patient population was small, there was a relatively even spread among the ages of patients. The youngest age group was intended to include patients that were much younger as well; however, there were no patients younger than 17 in that age bracket found. This could be a limitation of the study.

Over 70% of patients included in the study were white. Due to the medical center having multiple locations, and being placed in a very diverse community, there would theoretically be a more even spread of patients of different races. However, the results of this study mimic the results of a study into characteristics of female sexual assault survivors which found of those women who sought medical attention, 62% were white [12]. Therefore this skew in the data showing more white patients presenting speaks more to an possible inclination to seek medical attention after an attack in some races more than others.

After analyzing the patients and the time it took to present, it was found that nearly 65% of patients presented to the medical center within 24 hours. The importance of this analysis is that many of the

Table 2. Provision of CDC-recommended treatments in the sample patient population

Patient Population	Emergency Contraception	Hepatitis B	HIV Post-Exposure Prophylaxis	Sexually Transmitted Infections		
				Gonorrhea	Chlamydia	Trichomonas
Females <50 (n=25)	7 (28.0%)	2 (8.0%)	8 (32.0%)	6 (24.0%)	5 (20.0%)	3 (12.0%)
Females >50 (n=4)	N/A	1 (25.0%)	1 (25.0%)	1 (25%)	1 (25.0%)	0 (0%)
Males (n=5)	N/A	0 (0%)	1 (20.0%)	0 (0%)	0 (0%)	0 (0%)
Total (n=34)	N/A	3 (8.8%)	10 (29.4%)	7 (20.6%)	6 (17.6%)	3 (8.8%)

This table shows the medical treatment provided to the sample population. EC should be given to women of reproductive age, which was considered less than 50 years old in this study. Hepatitis B vaccination provided to patients without complete Hep B vaccination series. HIV prophylaxis is given to eligible patients. Prophylaxis treatment for common STI's such as chlamydia, gonorrhea, and trichomonas are also provided.

treatments recommended by the CDC work best when taken as soon as possible. This is especially pertinent to the administration of EC. This medication has a time limit of 120 hours in which the patient can take the medication and it is more effective the sooner the medication is taken. Therefore, the sooner the patients present, the higher probability there will be a positive outcome in treatment with EC. Only 6% of patients presented more than 120 hours after the assault. There were also 2 patients without data on when they presented, which is a limitation of this study. Potentially adding a feature in the sexual assault protocol in the future to include time to presentation can improve treatment of the patients. Desired, 88% of patients presented within the time frame allowed for administration of EC. Factoring out the men and women over 50 years old, all of whom would not receive EC, there were a total of 22 patients eligible to receive EC. However, only 7 of those patients actually received it, which equates to 32%. With only $\frac{1}{3}$ of patients actually receiving EC, it is important that all patients are receiving the recommended contraception to avoid unwanted pregnancy.

The next aspect the study analyzed was setting the patients presented to. About 53% of patients presented to the ED, while the remaining 47% of patients presented to a variety of settings including a primary care physician, a specialty clinic, being admitted into the hospital or there was no data. Ultimately, nearly 76% of patients reported or were brought directly to the hospital. What can be gained from this data is to know where the patients presented to so that studies can analyze what locations could benefit the most from presentations or protocols on the proper treatment of sexual assault survivors.

Ultimately, this study wanted to analyze whether patients who presented to the medical center were treated for sexual assault with the appropriate therapy. Emergency contraceptives were discussed previously. As seen in table 2, the number of patients treated for

Hepatitis B, HIV, gonorrhea, chlamydia and trichomonas were recorded. Unlike EC, these treatments are available for all patients to receive, independent of age or gender. A total of 3 patients were treated for Hepatitis B. Many of the patient charts did not indicate whether or not those who did not receive the prophylaxis had tested positive for HBIG, which would be an indication to not be treated. Next, a total of 10 patients were treated for HIV prophylaxis. Of those patients treated, 90% were administered CDC recommended therapy (table 2). This indicated strong adherence to recommended guidelines for those patients that were treated. However, there are many requirements that must be met in order to for patients to be deemed appropriate to receive prophylaxis for HIV. Whether the patients met those criteria was not obtained from the patient charts. This is a topic that could be addressed in future studies. Lastly, there were 7 patients treated for gonorrhea, 6 treated for chlamydia and 3 were treated for trichomonas. Out of all of those treated for STIs, none were men. All of these patients should be treated empirically for STIs, whether male or female and independent of age. Therefore, the data shows that there is poor adherence to treating patients for STIs in the medical center.

Many of the limitations of this study result from a lack of data. There was data lacking in the hours it took for the patients to present. Time to patient presentation is crucial to appropriate administration of emergency contraception. Therefore, it may be an important aspect to incorporate into a protocol for treating sexual assault survivors. Additionally, data that would have been helpful but was not always available from the charts was what type of penetration occurred during the assault as well as if the patient was positive for HBIG. This would be important also for appropriate treatment of patients.

Future studies could be conducted to further analyze treatment of sexual assault survivors. The time frame could be expanded to potentially gain a larger patient population and therefore a more accurate

analysis of the treatment of survivors at the medical center. Incorporating clinical guidelines, checklists and order sets could improve the standard of care, improve adherence to recommended treatment protocols and reduce variation in care of sexual assault survivors. [4,13]. Additionally, after implementation of a new sexual assault protocol, future studies can be conducted comparing pre-protocol and post-protocol treatment of patients.

Conclusion

The study shows inconsistency with the CDC recommended treatments in the treatment of sexual assault survivors. This included many patients not receiving EC, STI treatment, HIV PEP and Hep B. This study shows a need for a clear protocol on how to treat sexual assault patients, that all practitioners within the medical system could follow in the instance of a patient presenting following a sexual assault. With the knowledge afforded, the medical center can now implement a clear treatment protocol for sexual assault survivors, which will help standardize the treatment of these patients and optimize the care provided to them. Once a protocol of this sort is implemented at the medical center, the data can be analyzed again after sufficient time, to assess if there is a significant difference between treatment of patients from this study and patients treated after the implementation of the new sexual assault protocol.

Acknowledgements:

We would like to thank our UC San Diego colleagues Elizabeth Ramirez, coding compliance specialist, for reviewing relevant diagnosis codes and Dr. Wendy Zhu, biomedical informaticist, for extracting the data for this study.

References

1. Saltzman LE, Basile KC, Mahendra RR, Steenkamp M and Ingram E. (2007) National estimates of sexual violence treated in emergency departments *Annals Emerg Med.* 49: 210-7. [1]
2. Justice Department, National Crime victimization Survey: 2008-2012.
3. Straight JD and Heaton PC. (2007) Emergency department care for victims of sexual offense *Am J Health-sys Pharm.* 64: 1845-50. [1]
4. Patel A, Roston A, Tilmon S, Stern L, Roston A. et al. (2013) Assessing the extent of provision of comprehensive medical care management for female sexual assault patients in US hospital emergency departments *Int J Gynaecol Obstet.* 123: 24-8. [1]
5. Amey AL and Bishai D. (2002) Measuring the quality of medical care for women who experience sexual assault with data from the National Hospital Ambulatory Medical Care Survey *Ann Emerg Med.* 39: 631-8. [1]
6. Merchant RC, Keshavarz R and Low C. (2004) HIV post-exposure prophylaxis provided at an urban paediatric emergency department to female adolescents after sexual assault *Emerg Med J.* 21: 449-51.
7. Centers for Disease Control and Prevention. Sexual Assault and STDs. 2010. Available at <http://www.cdc.gov/std/treatment/2010/sexual-assault.htm>. Accessed November 2015.
8. Rovi S and Shimoni N. (2002) Prophylaxis provided to sexual assault victims seen at US emergency departments *J Am Med Womens Assoc.* 57: 204-7.
9. Parekh V and Brown CB. (2003) Follow up of patients who have been recently sexually assaulted *Sex Transm Infect.* 79: 349.
10. Ackerman DR, Sugar NF, Fine DN and Eckert LO. (2006) Sexual assault victims: factors associated with follow-up care *Am J Obstet Gynecol.* 194: 1653

-9.

11. Centers for Medicare and Medicaid Services. Find ICD-9 Code Lookup. Available at <http://www.cms.gov/medicare-coverage-database/staticpages/icd-9-code-lookup.aspx>. Accessed November 2015.
12. Zinzow HM, Resnick HS, Barr SC, Danielson CK and Kilpatrick DG. (2012) Receipt of post-rape medical care in a national sample of female victims Am J Prev Med. 433: 183-7.
13. Britton DJ, Bloch RB, Strout TD and Baumann MR. (2013) Impact of a computerized order set on adherence to centers for disease control guidelines for the treatment of victims of sexual assault J Emerg Med. 2: 528-35.