Teaching OMT to MDs

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Background

OMT continues to be an important part of the doctors of osteopathic medicine (DO) physicians’ identity1. As the match moves to a single graduate medical education system there is growing interest from DO physicians to keep their identity, and maintain their skills in OMT. There is even interest for learning OMT from allopathic physicians in family medicine residencies1. Implementing a resident-led OMT clinic successfully in an allopathic family medicine residency continues to be a goal for many programs. However, a limited number of studies exist to show the framework of implementing OMT clinic in an allopathic family medicine residency. A framework that focuses on education in osteopathic principles, philosophy and treatment modalities1. A brief survey of different medical schools noted osteopathic physicians spend approximately 4-9 hours a week learning osteopathic manipulative medicine over their first two years of training.

Objective

The goal of this project is to determine the level of interest to learn OMT hat exists among allopathic family medicine residents. Also, to determine whether developing intermittent hands on lectures will provide ample training to allow interested allopathic physicians to develop their OMT skills to a level that will allow them to comfortably apply their learned skills in a clinical setting.

Study Design and Method

1. Research hypothesis - We hypothesize that our short hands on lecture series will be adequately training to make allopathic family medicine residents comfortable utilizing OMT in future practice.
2. Study design - cohort study
3. The study population included allopathic family medicine residents from the UMKC family medicine residency program. Exclusion criteria includes being an osteopathic family medicine resident. Participants were recruited from among the UMKC Family Medicine Residency. An anonymous pre and post survey was collected at the end of the final session.

Results

Our research project aimed to help build a framework of building an OMT curriculum that includes allopathic family medicine residents. The goal was to teach several OMT techniques that can be utilized by allopathic family medicine residents for common musculoskeletal complaints in a family medicine practice. We obtained pre tests from 11 MD and 8 Post tests from MDs. Statistical analysis was performed using the Mann Whitney U as well as the Wilcox W test noting no statistically significant difference between pre and post tests for MDs.

Discussion

One strength of our project was aiming the curriculum at allopathic family medicine residents. This allowed us to focus on basic principals in osteopathic philosophy and basic OMT skills. This created a more inclusive experience in a mixed osteopathic and allopathic family medicine residency. Another strength in our project was the overall interest of osteopathic family medicine residents to teach OMT to allopathic family medicine residents.

We had several weakness in our project. Our surveys were not pre-participation and post-participation matched. This made it difficult to measure allopathic family medicine resident’s overall comfort with utilizing OMT in practice. Furthermore, we had a difference in pre-participation and post-participation numbers. This further complicated fulling analyzing the data to determine if our OMT program made our allopathic family medicine counterparts more likely to utilize OMT.

Recommendations

Moving forward with this OMT program framework we will need to create match for pre and post participation surveys. This will help solidify if our program is successful at making allopathic family medicine residents comfortable with basic OMT skills. Our data showed no statistical change in comfort with utilizing OMT as an option for musculoskeletal pain however this could be due to not enough exposure since many people were only able to attend a couple sessions, and osteopathic physicians spend hundreds of hours in medical school learning OMT and how to integrate these skills into patient care. MDs may need more small training sessions over a longer period of time to attain comfort with using basic OMT skills as a treatment option for common MSK complaints.

Acknowledgements

We greatly appreciate the help that Dr. Hempstead, Dr. Gibson, Hollie McKinney, LPN, and Gwen E. Sprague, MLS has provided throughout this study.

References

ABSTRACT
The goal of this research study was to assess the extended effectiveness of paraspinous bupivacaine injections, as determined by pain scores and patient satisfaction scores at ≥ 1 week post-procedure. We found that the procedure was effective in reducing pain at ≥ 1 week and was well rated by patients.

BACKGROUND
The use of paraspinous injections has been studied for headaches and migraines and found to be effective for short-term pain relief1,2,3. In an ambulatory (primary care) setting, however, there is a lack of data showing if the procedure offers any medium- or long-term benefit for either headaches or MSK neck pain.

OBJECTIVE
Our objective was to determine if in-office paraspinous bupivacaine injections are effective and satisfactory in treating neck and craniofacial pain for ≥ 1 week.

METHODS
This was a retrospective study that reviewed pain and patient satisfaction scores of paraspinous bupivacaine injections for neck pain, migraines, and other craniofacial musculoskeletal (MSK) pain, in the setting of a Family Medicine Residency ambulatory (outpatient) clinic at Truman Medical Center Lakewood.

Intervention
After signed consent, the C7 spinous process is identified. An area 3 cm lateral to this is prepped with alcohol in sterile fashion. Skin is numbed with ethyl chloride spray. A 25 gauge needle attached to a 3 ml syringe is advanced horizontally into the trapezius/levator scapulae to 1” depth. Area is injected with 1.5 ml of 0.5% bupivacaine. The process is repeated on the opposite side. The patient is observed for 10 minutes post-procedure for dyspnea, allergic reaction, or adverse affect. A 10-minute post-procedure pain rating is also obtained.

Post-Intervention
Chart review and phone interviews were conducted at ≥ 1 week to assess multiple pain and satisfaction scores.

RESULTS
49 patients were identified, with 40 meeting inclusion criteria and 33 achieving completion of data retrieval through a combination of chart review and phone interviews. M:C was 13:20 (39%:61%). Average age was 48.85 years. 25 (76%) were identified as having neck/medial shoulder pain; 8 (24%) had headache/migraine. Pre-procedure pain levels were similar for both complaints (7.92 vs 7.13), but headache/migraine patients had lower ≥ 1 week pain scores (0.63 headache vs 1.8 neck).

CONCLUSION
This study showed consistent reduction in pain scores as well as high patient satisfaction scores. Weaknesses to the study include low power (n=33) as well as being non-randomized. Some data points were obtained >1 month after the procedure, which could lend to recall bias. Some patients were referred for the procedure, which could lend to selection bias. The reduction in pain scores as well as patient satisfaction scores show this is an effective treatment for moderate- to long-term pain relief.

RECOMMENDATIONS
We recommend that this procedure be offered to patients as an effective treatment for neck and craniofacial pain. We also recommend a randomized comparison study between this method and other common methods.

Acknowledgements: Dr. Angela Barnett, Hollie McKinney, LPN, Gwen Sprague, MLS, Dr Beth Rosemergey

IRB#: 17-034
A leading cause of death among athletes stems from a mixture of hereditary, electrophysiologic or structural related disease of the heart. Introduction

Methods and procedure for data collection: 20 participants were given a set of EKGs, let alone those specific to athletes. Tables 2 and 3 show there are a great deal of abnormal responses in both the pre- and post-test. This was expected as a normal EKG in an athlete can be determined to be abnormal in an alternative setting. A second limitation would be the number of EKGs in the post-test compared with the pre-test. Fatigue and lack of enthusiasm could skew results in an effort to complete the test. There was also a low sample size obtained for this study.

Exclusion criteria: Residents with prior knowledge and/or use of the Seattle criteria were excluded.

The data from the pretest portion of the tests shows the sensitivity to be 83.33% and specificity 35.71%. After the two-page handout included in Box 1 and Table 1 was given for use with the post-test, the sensitivity decreased from 83.33% to 58.33%. The specificity increased from 35.71% to 67.86. This confirms our original hypothesis that the use of a standardized tool would improve the identification of normal electrophysiologic changes on EKG in athletes among primary care residents. However, the positivity did decrease. This could likely be attributed to several factors limiting the results.

First, this test was used in primary care residents with little experience reading EKGs, let alone those specific to athletes. Tables 2 and 3 show there are a great deal of abnormal responses in both the pre- and post-test. This was expected as a normal EKG in an athlete can be determined to be abnormal in an alternative setting. A second limitation would be the number of EKGs in the post-test compared with the pre-test. Fatigue and lack of enthusiasm could skew results in an effort to complete the test. There was also a low sample size obtained for this study.

Conclusions:

• Overall, the use of a standardized criteria while interpreting EKGs in athletes can be beneficial in the ability to properly identify those without a potential life-threatening cardiac dysfunction
• However, there was no proven benefit in the ability to properly identify athletes at risk for SCD
• There were several limitations of this study that, if corrected, could lead to an improvement in the sensitivity of the two-page standardized criteria tool. The tool did however improve the participants ability to correctly identify EKGs without significant abnormalities

References


Study Design and Method

This was a quality improvement project using analysis of existing data and reanalysis after implementation of screening tool.

Conclusion: A leading cause of death among athletes stems from a mixture of hereditary, electrophysiologic or structural related disease of the heart. 1,3,4 For years, whether or not to screen all athletes has been a topic of hot debate in the sports medicine community. Many causes of sudden cardiac death (SCD) in athletes can be seen on a 12-lead EKG. However, several factors play a role in the accuracy of identifying such changes. Due to the recurrent stress on the heart from repeated stress of competition and exercise athletes can have many normal physiologic changes associated with the heart that can be seen on EKG (see Box 1 to the right). The ability to differentiate between normal and abnormal variants of the athlete’s heart has led to much debate about the effectiveness of screening EKGs as part of the preparticipation physical exam in athletes. Currently, a thorough history and physical exam is all that is required on a PPE in athletes in a high school setting. Other entities including the NCAA require EKGs as part of the preparticipation physical exam as their athletes are already considered to be at higher risk. Some believe, however, that routine screening using EKGs can be used to find more athletes at risk that may be at higher risk that has been missed by conventional screening. The lack of expertise further compounds the controversy of this topic as finding clinicians trained in interpretation of EKGs in athletes limits its use in a broader aspect.

Over the past couple decades there have been many research projects aimed at identifying normal and abnormal variants in the athlete’s heart. 1,3,4 These standards are now being incorporated into EKG interpretation as a means to decrease unnecessary and expensive testing in the athlete. By increasing the awareness of normal electrophysiologic findings in the athlete we can improve the accuracy of EKG interpretation and decrease the rate of false-positive interpretations.

Results

Table 1: Normal Variant EKGs in Athletes

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<td>Total</td>
<td>72</td>
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<td>8</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 2: Pretest results. TP=True Positive; FP= False Positive; TN=True Negative; FN=False Negative

Sensitivity 83.33% Specificity 58.33%

Table 3: Posttest results. TP=True Positive; FP=False Positive; TN=True Negative; FN=False Negative

Sensitivity 83.33% Specificity 79.17%

Acknowledgements:

Many thanks to Holie McKinney, LPN; Gwen Sprague, MLS, and Dr. Kelly Jo Sandri for their help with this senior project.

IRB #16-381
Building Teamwork and Leadership Skills Through Resident Retreat
Emily Grewe-Nelson, D.O.

ABSTRACT
The goal of this research study was to attempt to build teamwork and leadership in residents utilizing a yearly overnight resident retreat for family medicine residents including PGY-1, PGY-2 and PGY-3 residents.

BACKGROUND
Traditional residency training is highly geared towards building academic achievement over building leadership and teamwork skills, however, the ACGME is working to improve these skills as healthcare is a team profession with continued reliance on these skills.

OBJECTIVE
The objective was to attempt to use the existing resident retreat in the UMKC Family Medicine program to build skills in teamwork and leadership.

METHODS
This was a nonrandomized trial that included Family Medicine residents PGY1 to 3 who are in training at the UMKC Family Medicine Residency. Participation in the study was optional and interventions were attended by all residents, regardless of participation in the study.

Pre-Intervention
Residents completed a pre-intervention survey using a 5 point Likert scale in which they gave their baseline level of comfort bringing up conflicts between residents, residents and nurses and residents and faculty. They were also asked how well-equipped they feel to handle the stress of residency as well as what percentage of their fellow residents they felt comfortable working on a team with and leading.

Intervention
The residents then participated in a yearly retreat with curriculum geared at developing teamwork and leadership skills including conflict resolution, team building activities and problem solving activities.

Post-Intervention
The residents filled out a post-retreat survey which included the same questions as the pre-retreat survey.

RESULTS
There was a significant difference between pre and post surveys in PGY-1 residents in questions 3, 4 and 5, in PGY-2 residents in questions 4, 5 and 8 and in PGY-3 residents in questions 3, 5, 6, 7 and 8. In the aggregate data of all residents between 2015 and 2016 there was a significant difference in pre and post test answers on all questions with the exception of question 7.

CONCLUSION
In aggregate data the retreat was found to significantly improve residents’ perception of their ability to manage the stress of residency, their ability to bring up conflicts with staff members, fellow residents and attendings as well as their comfort level working on a team with their fellow residents. In PGY-1 residents it was found to be statistically significant in improving conflict resolution skills in all settings tested. In PGY-2 residents it was found to be useful in handling conflicts with attending physicians and staff members as well as in stress management. PGY-3 residents had the most statistically significant improvement, showing improvement in all categories other than stress reduction tools and conflict resolution with attendings. Because surveys were not linked to individuals, but were rather analyzed as a pooled average response, the results of this study are somewhat limited. However, the overall trend of the data suggests that the resident retreat did significantly improve the residents’ perception of their stress management, conflict resolution and teamwork skills.

RECOMMENDATIONS
We recommend that the retreat be continued as it does show a significant positive impact on academic leadership skills. I would recommend that if this study is continued further that a device is used in which pre and post surveys can be matched to each individual rather than using pooled data.

References:
Prospective Quality Improvement Study Comparing Usage of Apollo Sepsis App Versus Traditional Identification Method In Identifying Sepsis

Background

Sepsis has been and remains one of the top causes of death in the inpatient population. Hospital mortality of patients with sepsis ranges from 28.3 to 41.1% in North America and Europe (1). The Agency for Healthcare Research and Quality lists sepsis as the most expensive condition treated in U.S. hospitals, costing more than $20 billion in 2011 (2). The early detection and timely administration of appropriate medications are the most important factors in improving the outcome of patients with sepsis (3). One of the most widely used diagnostic criteria's for early identification of sepsis is the systemic inflammatory response syndrome (SIRS) criteria which include the following 4 objective measurements (4):

- Body temperature higher than 38°C or lower than 36°C
- Heart rate higher than 90/min
- Hyperventilation evidenced by respiratory rate higher than 20/min or PaCO2 lower than 32 mmHg
- White blood cell count (WBC) higher than 12,000 cells/µl or lower than 4,000/µl

Redivus Health Sepsis App® was developed with the hypothesis that it will assist in early identification of sepsis.

Objective

To improve early detection of sepsis

Study Design and Method

- Patient data was gathered from first academic block of 2015 and 2016
- Initial three vital signs upon arrival to the emergency department, initial WBC and the ‘History and Physical’ Note at their admission
- Sepsis properly identified based on the H&P documentation?
- 2015 - traditional SIRS criteria methodology (criteria was only applied to patient care when resident subjectively thought the patient was septic)
- 2016 - Redivus Health Sepsis App® was to be applied to all patients admitted to the inpatient medicine service

Results and Discussion

During the first block of 2015 and 2016 there were 113 and 136 admissions recorded, respectively, after nonmedical admits were excluded. In 2015, there were 39 of 113 cases that met sepsis criteria and 28% (11/39) cases were properly documented. In 2016, there were 27 of 136 cases that met sepsis criteria and 85% (23/27) cases were properly documented.

Conclusions

The use of the Redivus Health Sepsis App® was associated with a statistically significant (p-value < 0.05) increase in sepsis identification at time of admission (85% versus 28%) when comparing 2016 to 2015.

Although this study did not explore whether treatment guidelines for sepsis were adequately met in patients who were accurately identified as having sepsis, one could hypothesize that early identification could improve the likelihood of providing early intervention for sepsis.

Recommendations

The next phase of this research will involve the UMKC internal medicine residents at Truman Medical Center – Hospital Hill. This could reveal reproducibility and increase the study’s power. Furthermore, this could eventually lead to an expansion of the application’s capabilities to include treatment protocols with appropriate timelines (i.e. early goal directed therapy) to improve the care of sepsis in this population.

Acknowledgements

We greatly appreciate the help that Dr. Voran, Hollie McKinney, LPN and Gwen E. Sprague, MLS has provided throughout this study.

References

3. Marik, PE. “Don’t Miss the Diagnosis of Sepsis.” Critical Care 2014, 18:529

Acknowledgements

We greatly appreciate the help that Dr. Voran, Hollie McKinney, LPN and Gwen E. Sprague, MLS has provided throughout this study.

References

3. Marik, PE. “Don’t Miss the Diagnosis of Sepsis.” Critical Care 2014, 18:529
Introduction

Postpartum hemorrhage is the leading cause of maternal morbidity and mortality in women worldwide, accounting for 27.1% of maternal deaths from obstetrical causes, and is a continued problem here in the United States. Only 8 countries had increases in maternal mortality between 2003 and 2013, one of which was the USA. The US has also experienced an increase in the rate of PPH of 2.3% to 2.9% from 1994 to 2006. While studies are ongoing, there is no clear cause that explains this increase. According to the CDC, the most common maternal morbidity is blood transfusion, followed by ICU admission. Having a set protocol to follow can improve the morbidity of postpartum hemorrhage when put into practice by an organization.

Currently, Truman Medical Center (Hospital Hill and Lakewood) does not have an evidence-based protocol for dealing with postpartum hemorrhage.

Resources


Objective

Implement a postpartum hemorrhage protocol for the medical staff, as well as a postpartum hemorrhage orderset in order to decrease the rates of PPH and its associated morbity and mortality.

Study Design

This is a quality improvement project, looking at existing data from the first 6 months of 2016 of the rates of postpartum hemorrhage, transfusion rates, and drop in hemoglobin. The data was then to be reanalyzed after the implementation of the intervention, namely the PPH protocol and orderset.

Study population: all women who delivered at Truman Medical Center Lakewood from January 2016–June 2016.

Methods and procedures: analyzed the rate of PPH by looking at EBL after delivery and after 24 hours or both vaginal and cesarean deliveries. Also analyzed the rate of transfusion due to hemorrhage and the average drop in hemoglobin for those with postpartum hemorrhage. After this data was collected, the protocol and orderset were to be implemented for 6 months, and the same data was to be analyzed after the intervention.

Outcomes: This quality improvement project is still ongoing as the protocol and orderset have finally been developed, but not implemented organization-wide.

Results and Discussion

Total:
- 699 deliveries and 37 hemorrhages = 5.3%
- Estimated national rate = 2.9%

Vaginal Deliveries:
- 538 vag del, 26 hemorrhages = 4.8%
- Rate of transfusions: 4/538 = 0.74%
- (Nat’l rate** = 0.5%)
- Avg drop in Hgb = 2.28 pts

Cesarean Deliveries:
- 161 c/s del, 11 hemorrhages = 6.8%
- Rate of transfusions: 3/161 = 1.86%
- (Nat’l rate** = 1.0%)
- Avg drop in Hgb = 2.45 pts

Transfusion Rate = 1.0%
- Nat’l rate** = 0.28%

No ICU admissions, no deaths

Recommendations/Future projects

- Continue on this current project: Implement the protocol, orderset, and hemorrhage cart at Lakewood, and look at this data in the 6 months after.
- Official diagnosis with code was not put in majority of the time, making the cases of hemorrhages difficult. This could be important for future pregnancies and for collecting data
- EBL was put in twice many times for cesarean sections. This was likely due to the nurse and anesthesia both putting in the EBL.
- Immediate postpartum EBL and 24 hour EBL were almost always identical. It may be helpful to be able to actually quantify how much in that 24 hour period a woman is losing.
- Still have not been able to get a hemorrhage cart for Lakewood.
- Have a way to pull data for all moms who went to the ICU due to hemorrhage.

Resources

Using a Simulated Patient Case to Improve Medical Students’ Skill at Providing Integrative Medical Therapies

Introduction
One of the principles of patient-centered care is ‘whole-person orientation’ \(^1\). The goal of this is to not only obtain a patient’s medical history but put it into context of their entire social, emotional and spiritual life. The question is, how do we teach medical students this patient-centered approach?

Simulated patient cases are an increasingly common and effective method for teaching medical students \(^2\). In addition, Integrative Medicine is an important tool that can be used to aid in providing patient-centered care to patients as it by nature is oriented to the whole person \(^3\). It is estimated that approximately half of all U.S medical schools currently offer Integrative Medicine or CAM curriculum \(^4\). Our goal is to provide a reliable method to teach integrative medical therapies to medical students and thus improve their ability to provide patient-centered care.

Expected Outcome
Providing an educational intervention to medical students using a simulated patient case incorporating integrative medicine therapies will increase the number of diagnoses assessed, the number of treatments provided, and increase the number of integrative medical therapies proposed in a standardized patient assessment.

Methods
➢ Compile data from a standardized patient assessment both before and after an integrative medicine educational intervention
➢ Create coding rules for evaluating data
➢ Using coding rules to identify number of diagnosis, interventions, and specifically integrative interventions that occurred before and after the interventions
➢ Sampling of 50 sets of before and after assessments were obtained
➢ Analyze data for significance using paired sample t-tests
➢ Use results to help establish future integrative medicine curriculum for medical students

Results
There was a significant increase in the students’ ability to identify pertinent diagnoses, and in the number of therapies offered, including a significant increase in the number of integrative medicine therapies suggested. In the pretest phase, 12 students did not identify one or more integrative medical therapies, whereas in the posttest phase all students presented at least one.

<table>
<thead>
<tr>
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<th>Mean Pre</th>
<th>Mean Post</th>
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<tr>
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<tr>
<td>Diagnoses</td>
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<td>Percent of total</td>
<td>33.9%</td>
<td>42.9%</td>
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</tbody>
</table>

Discussion
Teaching medical students patient-centered care can be challenging as their focus is often on memorizing ‘hard science’ principles of physiology and pharmacology rather than ‘soft science’ principles of communication and emotional intelligence \(^5\). However, the importance of these skills cannot be overlooked \(^6\). As we continue to shift towards a more patient-centered healthcare model, it is important to teach these principles early in medical education. Incorporating Integrative Medicine into the curriculum is one way achieve this. We have shown that simulated patient cases can effectively teach integrative medical therapies to medical students and improve their ability to provide possible diagnoses. In the future, we would hope to further analyze if the students are able to recognize the effect of other social, emotional, and spiritual issues on a patient’s medical presentation.

References

Special thanks to Drs. Angela Barnett and Miranda Huffman for the data and project guidance. Thanks to Gwen Sprague, MLS for the beautiful finished product!