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Expanding medical editorship

Alvin S Concha¹

Communicating systematic inquiry reports, article reviews, and opinions on health care services to different stakeholders is necessary for the effective utilization of newly generated knowledge in the field.¹ A journal article is a communication piece. It is a synthesis of existing knowledge, description of an inquiry process, new generated knowledge, and updated arguments—all packaged together as the author's message to the readers. The editor brokers the interface of the author and the readers. More specifically, the editor ensures that the readers receive the message that the author wants to convey.^{2,3} A good part of a journal's success, therefore, relies on the composition of the editorial team and on the editing process.

The present editorial team of the

Southern Philippines Medical Center Journal of Health Care Services (SPMC JHCS) is composed of a mix of core and short-term members. Core members include the Editor in Chief, three Associate Editors, two Assistant Editors, and a Managing Editor. Three types of short-term editors—Issue Editors, Article Editors and Editorial Interns—join core editors in the editing process.

We invite at least two Issue Editors every time we start planning for a new journal issue. We make a point of rotating issue editorship among representatives from specialty training departments in SPMC. We think that this scheme provides opportunities for the physicians to acquire skills in medical journal editing and to contribute to the production process of the journal.

When there is no core editorial team member with expertise in the topic of a submitted article, we invite an Article Editor with appropriate expertise. The editing scope of the Article Editor is limited to the assigned article only.

Earlier this year, we received funding from the Department of Science and Technology - Philippine Council for Health Research and Development to run our Editorial Internship Program for a year. Under the program, we accept and train students and professionals (Editorial Interns) who are recommended by academic and health institutions within

Davao Region to learn editing skills while helping in the production of the journal. Editorial Interns participated in all aspects of the editing process, including communicating with authors and other editors, fact-checking, reanalysis of data, outlining, content editing, copyediting, layouting and proofreading. Typically, one core editor, one short-term editor, and one intern are assigned to work on one article from submission to publication. Starting this issue of the SPMC JHCS, we give recognition to our interns for their editing contribution by mentioning them as co-Article Editors within the articles that they help produce.

Our main editing platform is accessible online. The platform allows storage, retrieval, editing, and sharing of cloud-based files. Editors are also able to communicate via comment, email, and chat within the platform.

Core editors, short-term editors, and interns all interact during our writing workshops (writeshops). Editors either physically attend the writeshops, which take place in a conference room in SPMC, or join the writeshops online. Outside of writeshop time, editors are free to edit articles at their own pace.

We have structured our editorial team and designed our editing process in order to allow the participation of as many stakeholders in health care services as possible. We will continue to explore new ways of incorporating more inclusive editorial practices. We hope that these efforts will eventually translate into the efficient broadening and use of the knowledge base of health care services.

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Postoperative outcomes of peripheral nerve block versus general endotracheal anesthesia for orthopedic upper limb surgery among pediatric patients: cohort study

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ABSTRACT

Background. Compared to adult patients undergoing upper limb surgery who receive general endotracheal anesthesia (GETA), those who receive peripheral nerve block (PNB) have better postoperative outcomes.

Objective. To compare postoperative outcomes of PNB and GETA for orthopedic upper limb surgery among pediatric patients.

Design. Cohort study.

Setting. Southern Philippines Medical Center, Davao City, from December 2015 to May 2016.

Participants. 94 boys and girls, 3 to 18 years old, who received either PNB or GETA for orthopedic upper limb surgery.

Main outcome measures. Postoperative pain by visual analogue scale (VAS), need for postoperative rescue opioid doses.

Main results. Of the 94 patients in this study, 47 (50%) received PNB, and the rest received GETA prior to surgery. Patients in the two anesthesia groups were comparable at baseline. The PNB group had lower mean VAS scores compared to the GETA group both at the post-anesthesia care unit (0.70 ± 1.52 versus 4.15 ± 1.78 ; $p < 0.001$) and at the Orthopedics Ward (0.45 ± 1.49 versus 4.13 ± 1.68 ; $p < 0.001$). The proportion of patients given postoperative rescue opioid doses was significantly lower in the PNB group (6/47; 12.77%) than in the GETA group (21/47; 44.62%; $p = 0.0006$).

Conclusion. Pediatric patients for orthopedic upper limb surgery who received PNB had less pain postoperatively and needed postoperative rescue opioid doses less frequently compared to those who received GETA.

Keywords. regional anesthesia, Modified Aldrete Score, Pasero Opioid-Induced Sedation Scale, postoperative nausea and vomiting

INTRODUCTION

The advantages of peripheral nerve block (PNB) over general endotracheal anesthesia (GETA) as an anesthetic technique for upper limb surgery include longer duration of analgesia, lower pain scores, lower opioid consumption leading to less nausea or vomiting,¹⁻⁴ decreased need for recovery room admission,^{4,5} and earlier hospital discharge.^{1,2,4,5}

While there are studies that compare PNB and GETA in adult patients requiring upper limb surgery,^{1,2,4,5} similar studies involving pediatric patients had not been reported.⁶ Upper limb injuries, such as metacarpal, radius/ulnar, and multiple hand fractures, are highest among children aged 0 to 14 years old.⁶ PNB has been used among patients needing upper limb surgeries.⁷ Nerve block techniques that have been designed for adults may have to be modified when used among children in order to take into account the pediatric patient's age, weight, and ability to cooperate, as well as the clinician's ability to evaluate pain response.⁸

In our institution, GETA has been the traditional anesthetic approach for all orthopedic upper limb surgery procedures. Three

years ago, however, some practitioners started using PNB for these same procedures with success, and with no recorded complications. We hypothesize that pediatric patients who receive PNB for upper limb surgery will show better postoperative outcomes compared to those who receive GETA. This study compared the postoperative pain scores, sedation scores, nausea and vomiting

IN ESSENCE

The use of peripheral nerve block (PNB) for upper limb surgeries among adults is associated with lower pain scores and lower rescue opioid consumption postoperatively.

In this study, pediatric patients who received PNB for orthopedic upper limb surgery experienced less pain and sedation, and needed less rescue opioid doses postoperatively, compared to patients who received general endotracheal anesthesia (GETA).

Administration of PNB in lieu of GETA in appropriate surgical procedures makes pain management more efficient and can result in faster recovery and reduced health care costs.

scores, rescue medications given, duration of post-anesthesia care unit (PACU) stay, and PACU discharge scores of pediatric patients given PNB versus GETA for orthopedic upper limb surgery.

METHODS

Study design and setting

We did a cohort study on pediatric patients who underwent orthopedic upper limb surgery at Southern Philippines Medical Center (SPMC) in Davao City, from December 2015 to May 2016. Approximately 1,200 orthopedic upper limb operations are performed in SPMC annually, with 23% of these involving pediatric patients. The choice of anesthesia (PNB versus GETA) is usually discussed by the anesthesiologist with the patient and the patient's adult representative prior to surgery. In this institution, PNB for pediatric patients for orthopedic upper limb surgery is done by some practitioners using a mixture of ropivacaine 3 mg/kg body weight and lidocaine 5 mg/kg body weight. Depending on the surgical procedure, the mixture of local anesthetics is injected into the axillary, interscalene, or subclavian perivascular area with the guidance of ultrasound and peripheral nerve stimulator. Patients for GETA are induced using standard intubation procedures. General anesthesia is usually administered using intravenous fentanyl at 1-2 mcg/kg, and intravenous propofol at 2 mg/kg, intravenous atracurium at 0.5 mg/kg. Patients are usually maintained on 2-2.2% inhaled sevoflurane intraoperatively.

Participants

Patients 3 to 18 years old with preoperative American Society of Anesthesiologists (ASA) classification of either I or II, and who were given either PNB or GETA for orthopedic upper limb surgery, were eligible for inclusion in the study. We excluded patients with multiple fractures, those that required complicated surgeries, those with Glasgow Coma Scale of less than 10, and those with mental disorders or who were otherwise uncooperative. Also excluded were patients who were converted from PNB to GETA, those with history of local anesthetic allergy, and those with deranged bleeding parameters. The sample size for this study was computed using the software SampSize. Estimation was made on the assumption that patients for orthopedic upper limb surgery under GETA have a mean postoperative visual analogue

scale (VAS) score of 6.11 ± 3.40 out of 10.⁹ A detection of a 2-point difference in mean VAS scores between two groups was considered statistically significant. In a test for comparison of two independent means carried out at <0.05 level of significance, a sample size of 47 per group will have 80% power of rejecting the null hypothesis (no significant difference in mean VAS scores between the two groups) if the alternative holds. For this study, we recruited 47 consecutive patients who had PNB and another 47 patients who had GETA for orthopedic upper limb surgery.

Data collection

We reviewed the medical records of each patient included in this study in order to collect data for type of anesthesia (PNB versus GETA), age, sex, ASA classification, comorbidities, pain scores at the PACU (taken 30 minutes after entry) and at the Orthopedics Ward (taken 24 hours after surgery), postoperative sedation scores, postoperative nausea and vomiting (PONV) scores, rescue medications given, PACU discharge score, and duration of PACU stay.

The main outcome measures of the study were the postoperative mean VAS scores of patients at the PACU and at the Orthopedics Ward, and the need for postoperative pain medications. VAS scores were assessed by nurses-on-duty using an 11-point scale (range: 0 = 'no pain' to 10 = 'worst pain'). The need for pain medications was determined by getting the proportion of patients who received postoperative rescue opioid doses per group, and by getting the mean cumulative postoperative rescue opioid dose per group among those who received the rescue medications. The secondary outcome measures of the study were: the Pasero Opioid-Induced Sedation Scale (POISS) scores (range: 1 = 'awake' to 4 = 'somnolent');^{10,11} the PONV Impact Scale scores (range: 0 = 'no nausea/no vomiting' to 3 = 'nauseated all of the time/vomited 3 or more times');¹² the Modified Aldrete Score to measure the eligibility for discharge from the PACU [0, 1, or 2 for each of the following: activity, respiration, circulation, consciousness, and oxygen saturation; total score of 0-7 (not dischargeable from the PACU); total score of 8-10 (dischargeable from the PACU)];¹³ and the duration of PACU stay. POISS and PONV Impact Scale scores were both measured upon entry to PACU and upon entry to the Orthopedics Ward postoperatively, while the

Modified Aldrete Score was measured 30 minutes after entry to the PACU.

Statistical analysis

We analyzed the data using Epi Info™ 7.2.1.10. Continuous data were summarized as means $\pm$ standard deviations and compared using independent t-test, while categorical data were summarized as frequencies and percentages and compared using chi-square or Fisher's exact test. The level of significance was set at <0.05 .

RESULTS

A total of 94 patients were included in this analysis, with 47 patients in the PNB group and another 47 in the GETA group. Table 1 shows that the two groups were comparable at baseline in terms of mean age, sex distribution, ASA classification distribution, and presence of comorbidities.

Postoperative outcomes are shown in Table 2. The mean VAS scores of the PNB group were significantly lower than those of the GETA group both at the PACU 30 minutes after entry ($p<0.0001$) and at the Orthopedics Ward 24 hours after surgery ($p<0.0001$). Likewise, the mean POISS scores of the PNB group were significantly lower than those of the GETA group both upon entry to the PACU ($p=0.0015$) and upon entry to the Orthopedics Ward ($p=0.0247$). There were no significant differences in mean PONV Impact Scale scores between the PNB and the GETA groups both upon entry to the PACU and upon entry to the Orthopedics Ward.

The number of patients given postoperative rescue opioid doses was significantly lower in the PNB group than in the GETA group ($p=0.0006$). In this subgroup of patients, mean age was higher among those who received PNB than among those who received GETA, but the difference was not significant ($p=0.2138$). Also in this subgroup, the mean cumulative postoperative rescue opioid dose actually given to patients was significantly higher in the PNB group than in the GETA group ($p=0.0477$).

Compared to the GETA group, the PNB group had a significantly higher mean Modified Aldrete Score 30 minutes after entry to the PACU ($p=0.0026$) and a significantly higher proportion of patients dischargeable from the PACU 30 minutes after entry to the unit ($p<0.0001$). The mean duration of stay of the GETA group at the PACU was longer compared to that of the PNB group, but the difference between the two was not significant ($p=0.1456$).

DISCUSSION

Key results

In this study, patients who received PNB for orthopedic upper limb surgical procedures had lower pain and sedation scores compared to those who received GETA. The PNB group also had a higher proportion of patients dischargeable from the PACU 30 minutes after entry to the unit. More patients in the GETA group needed postoperative rescue opioid doses, but the mean opioid dose they received was significantly lower compared to that received by patients in the PNB. There was no significant difference in mean PONV Impact Scale scores and mean duration of PACU stay between patients given PNB and those given GETA.

Strengths and limitations

In this study, we were able to directly compare the postoperative outcomes of pediatric patients given PNB to those given GETA for orthopedic upper limb surgery. We were also able to demonstrate favorable outcomes among patients given PNB using a combination of ropivacaine and lidocaine. However, this study had some limitations. First, allocation of the anesthetic approach was not randomized. We left the choice of the anesthetic approach to the patients and their anesthesiologists, and we only started observing the patients for outcomes after the administration of either PNB or GETA. With this

Table 1 Demographic and clinical characteristics of patients according to type of anesthesia

Characteristics	PNB (n=47)	GETA (n=47)	p-value
Mean age $\pm$ SD, years	9.98 $\pm$ 3.96	9.02 $\pm$ 4.22	0.2596
Sex, frequency (%)			1.0000
Male	9 (19.15)	9 (19.15)	
Female	38 (80.85)	38 (80.85)	
ASA classification, frequency (%)			1.0000
I	41 (87.23)	41 (87.23)	
II	6 (12.77)	6 (12.77)	
Pneumonia, frequency (%)	2 (4.26)	1 (2.13)	1.0000*
Bronchial asthma, frequency (%)	2 (4.26)	5 (10.64)	0.4349*
URTI, frequency (%)	1 (2.13)	0 (0.00)	1.0000*
VSD, frequency (%)	1 (2.13)	0 (0.00)	1.0000*

*using Fisher's exact test.

ASA—American Society of Anesthesiologists; CHD—coronary heart disease; GETA—general endotracheal anesthesia; PNB—peripheral nerve block; URTI—upper respiratory tract infection; VSD—ventricular septal defect.

Table 2 Postoperative outcomes of patients according to type of anesthesia

Characteristics	PNB (n=47)	GETA (n=47)	p-value
Mean VAS score 30 minutes after entry to the PACU $\pm$ SD	0.70 $\pm$ 1.52	4.15 $\pm$ 1.78	<0.0001*
Mean VAS score at the Orthopedics Ward 24 hours after surgery $\pm$ SD	0.45 $\pm$ 1.49	4.13 $\pm$ 1.68	<0.0001*
Mean POISS score upon entry to the PACU $\pm$ SD	0.04 $\pm$ 0.29	0.48 $\pm$ 0.86	0.0015*
Mean POISS score upon entry to the Orthopedics Ward $\pm$ SD	0.09 $\pm$ 0.41	0.38 $\pm$ 0.80	0.0247*
Mean PONV Impact Scale score upon entry to the PACU $\pm$ SD	0	0.06 $\pm$ 0.32	0.1792
Mean PONV Impact Scale score upon entry to the Orthopedics Ward $\pm$ SD	0	0	1.0000
Patients given postoperative rescue opioid dose, frequency (%)	6 (12.77)	21 (44.62)	0.0006*
Mean age $\pm$ SD, years†	11.33 $\pm$ 3.08	9.10 $\pm$ 3.95	0.2138
Mean cumulative postoperative rescue opioid dose $\pm$ SD, mg†	6.17 $\pm$ 3.87	3.98 $\pm$ 1.65	0.0477*
Mean Modified Aldrete Score 30 minutes after entry to the PACU $\pm$ SD	8.45 $\pm$ 1.54	7.66 $\pm$ 0.82	0.0026*
Eligible for discharge from the PACU after 30 minutes, frequency (%)	44 (93.62)	27 (57.45%)	<0.0001*
Mean duration of PACU stay $\pm$ SD, minutes	119.64 $\pm$ 43.70	134.60 $\pm$ 54.51	0.1456

*Statistically significant.

†n(PNB)=6; n(GETA)=21.

GETA—general endotracheal anesthesia; PACU—post-anesthesia care unit; PNB—peripheral nerve block; PONV—postoperative nausea and vomiting; POISS—Pasero opioid-induced sedation scale; VAS—visual analogue scale.

method of allocation of anesthetic approach, several known and unknown factors (e.g., patient's weight or age) could possibly have influenced the decision of the anesthesiologist to choose one approach over another, and the factors could possibly have affected the outcomes of interest. Second, one of the main outcome measures of this study was postoperative pain scores using VAS, which is an observer-dependent assessment. For example, what was scored as 5/10 for one patient by one observer could be scored as 8/10 by another observer. Finally, the present study did not measure the duration of hospital stay of patients in either group. As an outcome, the duration of hospital stay can potentially reflect clinically significant postoperative events related to the effectiveness and safety of the anesthetic approach.

Interpretation

Results of the study indicate favorably lower mean VAS and mean POISS scores and favorably higher mean Modified Aldrete score among patients who received PNB for orthopedic upper limb surgeries.

Postoperative pain is well-controlled after nerve blocks because the duration of action of the local anesthesia extends beyond the entire duration of the surgical procedure.^{14,15} Hence, as with adult patients in other studies on either hand-and-wrist surgeries^{1,2,4} or rotator cuff surgeries,⁵ pediatric patients in this study who received PNB experienced less pain postoperatively. This experience also

lessens the need for postoperative analgesia. In this study, there was a significantly lesser proportion of patients in the PNB group, compared to those in the GETA group, who needed rescue opioid medications postoperatively. Although the difference in mean ages between the two groups was not statistically significant, patients who received PNB had higher mean age (11 years) compared to those who received GETA (9 years), possibly implying higher mean weight, and therefore higher absolute opioid doses, among patients who received PNB.

The POISS score reflects sedation levels, and higher scores (maximum of 4) indicate deep sedation.¹² Sedation is one of the effects of anesthetics and opioid analgesics used in GETA or PNB. Sedation helps in the management of intraoperative and postoperative pain, but is associated with higher incidence of PONV, constipation, urinary retention, respiratory depression, somnolence, and sleep disturbances.⁵ A heavily sedated patient requires longer stay at the PACU.¹³ In this study, the higher mean POISS among patients who received GETA possibly reflects the greater amount of opioids and other sedating anesthetics used intraoperatively during general anesthesia, as well as the more frequent need for postoperative rescue opioid doses in this group of patients.

PONV is an important side effect of sedating agents. To some patients, PONV can be more bothersome than postoperative pain.¹⁶ In this study however, PONV did not

occur among patients who received PNB, and its incidence was almost nil among patients who received GETA.

The Modified Aldrete scoring system is commonly used to determine when patients can be safely discharged from the PACU to the post-surgical ward.¹³ The scoring system reflects activity, respiration, circulation, consciousness, and oxygen saturation of the postoperative patient.¹⁷ A score of 8-10 is considered adequate to discharge a patient from the PACU.¹³ A higher score indicates better readiness for discharge.

Performing PNB among pediatric patients undergoing upper limb surgery is a relatively new practice in our setting. To date, it is still standard procedure in our institution to admit patients to the PACU immediately after surgery, regardless of the anesthesia used. In this study, the PNB group showed a significantly higher mean Modified Aldrete score and a significantly higher proportion of patients who were eligible for discharge from the PACU 30 minutes after admission to the unit, compared to the GETA group. These results imply earlier return to pre-anesthesia conditions and immediate post-operative recovery from the surgical procedure among patients given PNB.

In general, patients given regional anesthesia, including PNB, have been observed to have shorter PACU stay compared to those given GETA.^{5 18 19} In other studies,^{2 5} 76% to 79% of adult patients who received PNB bypassed the PACU. In our study, while there was a trend towards longer PACU stay in the GETA group, the PNB and GETA groups did not significantly differ in terms of duration of PACU stay. At least part of the reason for this finding can be attributed to our practice of admitting all postoperative patients to the PACU, regardless of the type of anesthesia given to the patients.

Generalizability

We can use the results of this study to support a postoperative management procedure for our institution that skips PACU admission among pediatric patients given PNB for orthopedic upper limb surgery. Our findings in this study may also apply to other types of surgery or anesthesia administration wherein regional blocks can be done in lieu of general anesthesia. Efficient anesthesia and pain management increases postoperative comfort and satisfaction, enhances mobilization, incurs fewer pulmonary and

cardiac complications, and leads to faster recovery and reduced costs of care.²⁰

CONCLUSION

In this cohort study, the group of pediatric patients given PNB for orthopedic upper limb surgery experienced less pain and sedation, needed postoperative rescue opioid doses less frequently, and had a significantly higher proportion of dischargeable patients from the PACU 30 minutes after entry to the unit compared to the group of patients who were given GETA for the procedure. The two groups were comparable in terms of PONV Impact Scale scores and mean duration of PACU stay.

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Ethics approval

This study was reviewed and approved by the Department of Health XI Cluster Ethics Review Committee (DOH XI CERC reference P15050501).

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Bacterial growth in placental swab cultures done among women who received ampicillin prophylaxis for term prelabor rupture of membranes: matched cohort study

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ABSTRACT

Background. Term prelabor rupture of membranes (PROM) increases the risk of maternal and neonatal infections.

Objective. To compare rates of positive bacterial growth in placental swab cultures done among women who received ampicillin prophylaxis at different timings after term PROM.

Design. Matched cohort study.

Setting. Department of Obstetrics and Gynecology at Southern Philippines Medical Center in Davao City, Philippines.

Participants. 120 pregnant women aged ≥ 18 years old, at ≥ 37 weeks age of gestation, with PROM: 40 women received ampicillin within 6 hours (6H group), 40 within >6 to 12 hours (12H group), and 40 within >12 to 18 hours (18H group) of onset of PROM.

Main outcome measures. Rates of positive bacterial growth in postpartum placental swab cultures; most common bacterial isolates; and signs of intraamniotic infection (IAI).

Main results. Women in the 6H group, 12H group, and 18H group did not significantly differ in terms of clinical characteristics at baseline. None of the women developed clinical IAI. Positive bacterial growth were observed in 27/40 (67.5%) of cultures in the 6H group, 31/40 (77.5%) of cultures in the 12H group, and 31/40 (77.5%) of cultures in the 18H group. Across all groups, the five most common isolates were *Escherichia coli*, *Staphylococcus hominis*, *Staphylococcus haemolyticus*, *Staphylococcus epidermidis*, and *Enterobacter cloacae*.

Conclusion. Rates of positive bacterial growth in placental swab cultures did not significantly differ among groups of women who received ampicillin at different timings within 18 hours from onset of term PROM.

Keywords. placental swab culture, bacterial isolates, intraamniotic infection, ampicillin prophylaxis

INTRODUCTION

Compared to pregnant women with rupture of membranes after the onset of labor, those with prelabor rupture of membranes (PROM; also known as premature rupture of membranes) at term have higher rates of both maternal and neonatal infections.¹ Prophylactic antibiotic administration during term PROM prevents these infections.²⁻⁴

Women with PROM for 12 hours are at higher risk of intraamniotic infection (IAI), and those with PROM for 16 hours are at higher risk of endometritis.⁵ Fetal complications, such as low APGAR score and neonatal sepsis, can also happen after IAI.⁶ Antibiotic prophylaxis is commonly indicated when labor begins or is induced 12 hours after PROM,^{3,4,7} but some question its usefulness when administered to women with term PROM.⁸⁻¹⁰

There has been no consensus as regards the optimal timing of prophylactic antibiotic administration to women with term pregnancies complicated by PROM. In our setting, obstetricians prescribe antibiotics on admission as prophylaxis for IAI. Patients with term PROM in our institution therefore receive antibiotics as early as 6 hours from rup-

ture of membranes.

We wanted to check bacterial growth in placental swab cultures from postpartum women after prepartum antibiotic administration. We hypothesized that, the sooner antibiotics are given to pregnant women after PROM, the lower the rate of intraamniotic bacterial growth that can possibly lead to clinical infection. We did this study in order to compare bacterial growth in placental swab

IN ESSENCE

Prelabor rupture of membranes during term pregnancy (term PROM) can cause maternal and neonatal infections.

In this study among women who received ampicillin prophylaxis within 18 hours of term PROM, the rates of positive bacterial growth in postpartum placental swab cultures were similar, regardless of timing of ampicillin administration.

Antibiotic prophylaxis for term PROM should at least cover common bacterial isolates—*Escherichia coli*, *Staphylococcus spp.*, and *Enterobacter cloacae*—and should start within 18 hours from rupture of membranes.



cultures done among women given ampicillin prophylaxis at different timings after term PROM.

METHODOLOGY

Study design and setting

We did a matched cohort study from March to September 2016 at the Department of Obstetrics and Gynecology in Southern Philippines Medical Center in Davao City. The department admits an average of 13,600 patients per annum for delivery, and an average of 16% of these patients have a diagnosis of term PROM. In our institution, patients with term PROM usually receive 2 grams of intravenous ampicillin on admission and every six hours thereafter until delivery.

Participants

Patients aged 18 years or older, at or after 37 weeks age of gestation, with self-reported rupture of membranes but in latent phase of labor, with live singleton pregnancy in vertex presentation, admitted to deliver in our institution, who received at least one dose of 2 grams of intravenous ampicillin upon admission, and who gave informed consent were eligible to participate in the study. We purposively recruited 40 consecutive eligible patients whose membranes ruptured within 6 hours of administration of ampicillin (6H group), another 40 consecutive eligible patients whose membranes ruptured more than 6 hours up to 12 hours of administration of the antibiotic (12H group), and another 40 consecutive eligible patients whose membranes ruptured more than 12 hours up to 18 hours of administration of ampicillin (18H group).

Data collection

We gathered information on the patients' age, gravidity, and parity, as well as on white

blood cell (WBC) and C-reactive protein (CRP) elevations on admission, prior to antibiotic administration. We also collected data on signs of infection (fetal tachycardia from admission to delivery, and maternal fever, maternal tachycardia, uterine tenderness, and foul odor vaginal discharge all throughout the patient's stay), as well as complications such stillbirth and postpartum hemorrhage.

Collection of specimen from the delivered placenta was done by swabbing the chorion-amnion interface using a sterile cotton pledget and putting the swab in a cooked meat medium. The swab was then inoculated in MacConkey and blood agar plates. The plates were incubated at 37 degrees Celsius for 24 hours. MacConkey plates and half of the blood agar plates were stored in an aerobic environment, while the rest of the blood agar plates were stored in an anaerobic environment. Bacterial colonies noted within 24 hours were subsequently identified.

The main outcome measures for this study were the presence of bacterial growth and the identification of the most commonly isolated bacteria from the cultures. We also tested the susceptibility of the isolates to selected antibiotics. Across all groups, we also looked at the proportions of patients with maternal signs of infection (i.e., tachycardia, fever, uterine tenderness, foul odor vaginal discharge), fetal tachycardia, stillbirth, and postpartum hemorrhage.

Statistical analysis

We used Epi Info™ 7.1.4.0 to analyze the data for this study. Continuous variables were summarized as means $\pm$ standard deviations and compared using ANOVA. Categorical variables were summarized as frequencies and percentages, and compared using chi-square. We set the level of significance at <0.05 .

RESULTS

A total of 120 patients were included in this analysis. Table 1 shows the baseline characteristics of the patients per exposure group. The three groups were comparable in terms of mean age, mean gravidity, and mean parity. The frequencies of elevated WBC and elevated CRP did not significantly differ across exposure groups.

Table 2 shows the comparative frequencies of outcomes of the three exposure groups. All groups were comparable in terms of prepartum symptoms. One patient from the 6H

Table 1 Patients' characteristics on admission

Characteristics	6H* n=40	12H* n=40	18H* n=40	p-value
Mean age $\pm$ SD, years	25.40 $\pm$ 5.82	25.98 $\pm$ 5.98	26.35 $\pm$ 6.12	0.7742
Mean gravidity $\pm$ SD	1.92 $\pm$ 1.49	1.73 $\pm$ 1.09	2.10 $\pm$ 1.93	0.5555
Mean parity $\pm$ SD	0.74 $\pm$ 1.41	0.58 $\pm$ 0.78	0.98 $\pm$ 1.82	0.4430
Elevated WBC, frequency (%)	1 (2.5)	5 (12.5)	4 (10.0)	0.2422
Elevated CRP, frequency (%)	6 (15.0)	12 (30.0)	10 (25.0)	0.2713

*6H (≤ 6 hours), 12H (>6 hours up to 12 hours), or 18H (>12 hours up to 18 hours) from rupture of membranes to ampicillin administration.

CRP—C-reactive protein; WBC—white blood cells.

Table 2 Clinical and placental swab culture outcomes

Parameters	Frequency (%)			p-value
	6H*	12H*	18H*	
Maternal tachycardia	0	1 (2.5)	0	0.3648
Fetal tachycardia	1 (2.5)	0	0	0.3648
Maternal fever	0	0	0	1.0000
Uterine tenderness	0	0	0	1.0000
Foul odor vaginal discharge	0	0	0	1.0000
Postpartum hemorrhage	2 (5.0)	0	0	0.1308
Stillbirth	0	1 (2.5)	0	0.3648
Positive placental swab culture	27 (67.5)	31 (77.5)	31 (77.5)	0.4986

*6H (≤6 hours), 12H (>6 hours up to 12 hours), or 18H (>12 hours up to 18 hours) from rupture of membranes to ampicillin administration.

group had fetal tachycardia and one patient from the 12H group had maternal tachycardia. None of the patients in the study had maternal fever, uterine tenderness or foul odor vaginal discharge. One patient in the 12H group had stillbirth, and two patients in the 6H group had postpartum hemorrhage. However, none of the clinical outcomes had statistically significant difference in frequencies across the three groups. A total of 89/120 (74.17%) patients had positive placental swab cultures. The frequencies of positive placental

swab cultures were similar across all groups ($p=0.4986$).

Isolates from the placental swab cultures are listed in Table 3. Across all groups, the five most common organisms isolated were *Escherichia coli*, *Staphylococcus hominis*, *Staphylococcus haemolyticus*, *Staphylococcus epidermidis*, and *Enterobacter cloacae*. One placental swab culture from the 6H group and another one from the 12H group grew methicillin-resistant *Staphylococcus aureus* (MRSA). The antibiotic susceptibility patterns of the five most common organisms and MRSA are summarized in Table 4.

DISCUSSION

Key results

In this study, the frequencies of bacterial growth in placental swab cultures did not significantly differ across exposure groups given ampicillin prophylaxis at different timings after term PROM. The most common bacterial isolates from the placental swab cultures were *Escherichia coli*, *Staphylococcus hominis*, *Staphylococcus haemolyticus*, *Staphylococcus epidermidis*, and *Enterobacter cloacae*.

Strengths and limitations

We were able to demonstrate bacterial growth

Table 3 Bacterial isolates from patients with positive placental swab cultures

6H* n=27		12H* n=31		18H* n=31	
Organism†	Frequency	Organism†	Frequency	Organism†	Frequency
<i>Escherichia coli</i>	8	<i>Escherichia coli</i>	10	<i>Escherichia coli</i>	10
<i>Staphylococcus hominis</i>	4	<i>Staphylococcus hominis</i>	4	<i>Staphylococcus hominis</i>	3
<i>Staphylococcus haemolyticus</i>	2	<i>Enterobacter cloacae</i>	3	<i>Acinetobacter spp.</i>	2
<i>Staphylococcus epidermidis</i>	2	<i>Staphylococcus epidermidis</i>	3	<i>Bacillus spp.</i>	2
<i>Bacillus spp.</i>	2	<i>Staphylococcus haemolyticus</i>	3	<i>Enterobacter cloacae</i>	2
<i>Candida krusei</i>	1	<i>Staphylococcus sciuri</i>	2	<i>Klebsiella pneumoniae</i>	2
<i>Enterobacter cloacae</i>	1	<i>Pseudomonas putida</i>	2	<i>Pseudomonas stutzeri</i>	2
<i>Enterococcus faecalis</i>	1	<i>Bacillus spp.</i>	1	<i>Staphylococcus epidermidis</i>	2
<i>Grimontia hollisae</i>	1	<i>Klebsiella pneumoniae</i>	1	<i>Staphylococcus haemolyticus</i>	2
<i>Klebsiella pneumoniae</i>	1	<i>Micrococcus luteus</i>	1	<i>Acinetobacter lwoffii</i>	1
<i>Kocuria kristinae</i>	1	MRSA	1	<i>Aeromonas spp.</i>	1
<i>Kocuria rosea</i>	1	<i>Pseudomonas mendocina</i>	1	<i>Candida non-albicans</i>	1
<i>Micrococcus luteus</i>	1	<i>Staphylococcus aureus</i>	1	<i>Enterococcus faecalis</i>	1
MRSA	1	<i>Staphylococcus capitis</i>	1	<i>Staphylococcus warneri</i>	1
<i>Staphylococcus aureus</i>	1	<i>Staphylococcus warneri</i>	1		
<i>Staphylococcus capitis</i>	1				
<i>Staphylococcus epidermidis</i>	1				

*6H (≤6 hours), 12H (>6 hours up to 12 hours), or 18H (>12 hours up to 18 hours) from rupture of membranes to ampicillin administration.

†one placental swab culture may grow more than one bacterial species.

MRSA—methicillin-resistant *Staphylococcus aureus*.

Table 4 Antibiotic susceptibility patterns for the five most common bacterial isolates and MRSA from 89 patients with positive placental swab cultures

Antibiotic	<i>Escherichia coli</i>				<i>Staphylococcus hominis</i>				<i>Staphylococcus haemolyticus</i>				<i>Staphylococcus epidermidis</i>				<i>Enterobacter cloacae</i>				MRSA			
	n*	S	I	R	n*	S	I	R	n*	S	I	R	n*	S	I	R	n*	S	I	R	n	S	I	R
Amikacin	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	-	6	6	0	0	-	-	-	-
Ampicillin	27	19	0	8	-	-	-	-	-	-	-	-	-	-	-	-	6	0	0	6	-	-	-	-
Ampicillin + sulbactam	22	21	1	0	-	-	-	-	-	-	-	-	-	-	-	5	-	0	0	5	-	-	-	-
Azithromycin	-	-	-	-	1	0	0	1	1	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-
Aztreonan	28	28	0	0	10	3	0	7	6	3	0	3	5	4	0	1	6	6	0	0	2	2	0	0
Cefepime	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	-	6	6	0	0	-	-	-	-
Cefotaxime	28	28	0	0	-	-	-	-	-	-	-	-	1	1	0	0	4	4	0	0	-	-	-	-
Cefoxitin	28	28	0	0	11	3	0	8	7	1	0	6	6	2	0	4	6	0	0	6	2	0	0	2
Ceftazidime	27	27	0	0	-	-	-	-	-	-	-	-	-	-	-	6	-	5	0	1	-	-	-	-
Ceftriaxone	27	27	0	0	-	-	-	-	-	-	-	-	-	-	-	6	-	5	0	1	-	-	-	-
Cefuroxime	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	6	-	2	0	4	-	-	-	-
Ciprofloxacin	28	28	0	0	11	11	0	0	7	7	0	0	7	7	0	0	6	6	0	0	2	2	0	0
Clindamycin	2	2	0	0	10	4	0	6	7	6	0	1	7	6	0	1	-	-	-	-	2	2	0	0
Coamoxiclav	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	6	-	0	0	6	-	-	-	-
Cotrimoxazole	24	16	0	8	11	8	0	3	7	5	0	2	7	4	0	3	6	4	0	2	2	1	0	1
Ertapenem	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	6	-	5	1	0	-	-	-	-
Erythromycin	-	-	-	-	11	3	2	6	7	4	0	3	7	4	0	3	-	-	-	-	2	2	0	0
Gentamicin	27	27	0	0	11	11	0	0	7	7	0	0	7	6	0	1	6	6	0	0	2	2	0	0
Imipenem	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	-	6	6	0	0	-	-	-	-
Levofloxacin	26	26	0	0	11	11	0	0	7	7	0	0	6	6	0	0	6	6	0	0	2	2	0	0
Linezolid	-	-	-	-	11	11	0	0	7	7	0	0	7	7	0	0	-	-	-	-	2	2	0	0
Meropenem	28	28	0	0	-	-	-	-	-	-	-	-	-	-	-	-	6	6	0	0	-	-	-	-
Ofloxacin	-	-	-	-	9	9	0	0	6	6	0	0	7	7	0	0	-	-	-	-	2	2	0	0
Oxacillin	-	-	-	-	7	3	0	4	6	1	0	5	7	3	0	4	-	-	-	-	2	0	0	2
Penicillin	-	-	-	-	11	1	0	10	7	0	0	7	7	3	0	4	-	-	-	-	2	0	0	2
Piperacillin	12	11	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Piperacillin + tazobactam	23	23	0	0	-	-	-	-	-	-	-	-	-	-	-	-	5	4	0	1	-	-	-	-
Rifampicin	-	-	-	-	10	10	0	0	7	7	0	0	7	6	0	1	-	-	-	-	2	2	0	0
Tazobactam	5	5	0	0	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0	0	-	-	-	-
Tetracycline	-	-	-	-	10	9	0	1	7	5	0	2	7	5	0	2	-	-	-	-	2	0	0	2
Tobramycin	27	27	0	0	-	-	-	-	-	-	-	-	-	-	-	-	6	6	0	0	-	-	-	-
Vancomycin	-	-	-	-	9	9	0	0	7	7	0	0	7	7	0	0	-	-	-	-	2	2	0	0

*n varies because not all isolates were tested for susceptibility with every antibiotic available, and not all antibiotics were available every time an isolate was tested for susceptibility.
I—intermediate susceptibility; R—resistant; S—susceptible.

in postpartum placental swab cultures from women who received ampicillin prophylaxis within 18 hours after term PROM. None of our patients developed clinical intraamniotic infection, but this finding underscores the importance of early administration of antibiotic prophylaxis to women with term PROM. There were some limitations in this study. Amniotic fluid culture is the gold standard for diagnosing intraamniotic infection,¹¹ but we did not include this as a study procedure. We only relied on postpartum placental swab culture to establish the presence of bacteria

in the placenta, and yet we could not get data on bacterial loads of isolates, either. We did not include data on labor induction, and we did not account for the actual doses of ampicillin given to the patients and the time from PROM to delivery. These elements in the management of patients with term PROM can possibly affect bacterial growth in the placental swab cultures. Finally, apart from determining the presence of fetal tachycardia, we did not collect other parameters that can possibly establish the presence of fetal or neonatal infections related to PROM.

Interpretation

Term PROM is the rupture of membranes before labor at or after 37 weeks of gestation.¹² When labor is not induced, spontaneous delivery will usually occur in 70% of women within 24 hours and in 85% of women within 48 hours of rupture of membranes.¹³ The condition can induce cord prolapse, cord compression, placental abruption, various deformities due to oligohydramnios, and/or mechanical difficulties during delivery.¹⁴⁻¹⁵ Moreover, women with term PROM are at high risk of IAI.¹⁴⁻¹⁶⁻¹⁷ Clinical IAI is diagnosed when a pregnant woman with PROM has fever, accompanied by at least two of the following: uterine tenderness, maternal or fetal tachycardia, and purulent or foul odor vaginal discharge.¹⁸⁻¹⁹ In our study, none of our patients had clinical IAI. The administration of antibiotics on admission could have prevented any latent or clinical infection in at least some of our patients.

Antibiotics are generally recommended 18 hours after rupture of membranes.²⁰⁻²¹ Most pregnant women with term PROM in our institution all receive ampicillin prophylaxis upon admission, prior to delivery. We wanted to know if, despite administration of antibiotics, there would still be bacterial growth in postpartum placental swab cultures and, if there was, we wanted to check whether growth varied in frequency according to timing of antibiotic administration from the onset of rupture of membranes. Our results revealed that 67.5-77.5% of the placental swab cultures demonstrated bacterial growth despite prepartum administration of ampicillin prophylaxis to women with PROM. Bacterial growth was present in cultures from placenta of women who were given antibiotic prophylaxis as early as <6 hours after rupture of membranes. The timing of antibiotic administration in relation to the onset of rupture of membranes did not significantly affect the proportion of patients with positive placental swab culture.

Intraamniotic infection after rupture of membranes usually happens through ascending bacterial invasion by aerobic and anaerobic organisms from the vagina.¹⁷ Many organisms can cause infection of the placenta, but the most common are beta-hemolytic streptococci, *Staphylococcus aureus*, *Escherichia coli*, and *Listeria monocytogenes*.²²⁻²⁴ *Streptococcus viridans*, *Staphylococcus spp.*, *Enterobacter cloacae*, and *Gardnerella vaginalis* have also been isolated in placenta from women who gave birth to preterm

neonates.²⁵

In this study, *Escherichia coli* turned out to be the most common organism isolated from the placenta, followed by *Staphylococcus hominis*, *Staphylococcus epidermidis*, *Staphylococcus haemolyticus* and *Enterobacter cloacae*. Two placental swab cultures also grew MRSA. *Escherichia coli* and *Enterobacter cloacae* are gram negative rods that are normally seen in the human intestine,²⁶ while *Staphylococcus epidermidis* is part of the normal flora of the human skin, respiratory tract, and gastrointestinal tract,²⁷ but they can become pathogenic when they reach other tissues.

Routine prophylactic antibiotic administration to pregnant women at the time of term PROM can significantly reduce maternal and neonatal infectious morbidity.²⁸ However, judicious use of antibiotic should be ensured since there is an increasing incidence of bacterial resistance,²⁹ and—although rare—life-threatening maternal anaphylaxis can occur with antibiotic use.³⁰

In our institution, we usually use ampicillin as prophylactic antibiotic for women with term PROM. In this study, only 19 out of 27 *Escherichia coli* isolates were susceptible to ampicillin. Based on available data from the antibiotic susceptibility patterns of the five most common bacterial isolates from patients with positive placental swab cultures, the antibiotics that the organisms are most susceptible to are ciprofloxacin and levofloxacin. Four of the five organisms were also 100% susceptible to gentamicin. Quinolones like ciprofloxacin and levofloxacin are generally not used during pregnancy.³¹ Both ciprofloxacin and levofloxacin are classified as Pregnancy Category C by the United States Food and Drug Administration.³² Gentamicin can be combined with ampicillin to treat IAI.³³ This regimen is also useful in preventing or treating neonatal sepsis, which is a complication of PROM.³⁴⁻³⁵

Generalizability

These results support the practice in our institution of giving antibiotic prophylaxis to pregnant women with term PROM upon admission. The antibiotic of choice should at least cover *Escherichia coli*, *Staphylococcus spp.*, and *Enterobacter cloacae*, the most common bacterial isolates, and should be given as soon as possible, preferably within 18 hours from rupture of membranes. Obstetric practitioners in facilities similar to ours may consider our findings when managing pregnant

women with term PROM who come to the facility right after rupture of membranes.

CONCLUSION

The rates of positive bacterial growth in placental swab cultures were similar across patient groups who received ampicillin prophylaxis at different timings (within 6 hours, more than 6 to 12 hours, and more than 12 hours to 18 hours) in relation to onset of term PROM. The most common bacteria isolated from the placental swab cultures were *Escherichia coli*, *Staphylococcus hominis*, *Staphylococcus haemolyticus*, *Staphylococcus epidermidis*, and *Enterobacter cloacae*.

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Ethics approval

This study was reviewed and approved by the Department of Health XI Cluster Ethics Review Committee (DOH XI CERC reference P15072501).

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Competing interests

None declared

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Hemodynamic outcomes of adult patients on scalp block using ropivacaine and lidocaine: retrospective cohort study

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ABSTRACT

Background. Hemodynamic instability can occur with the pain from scalp incision to brain retraction during cranial neurosurgery.

Objective. To determine the hemodynamic outcomes of patients who received ropivacaine plus lidocaine scalp block.

Design. Retrospective cohort study.

Setting. Southern Philippines Medical Center, Davao City.

Participants. 44 patients given scalp block for cranial neurosurgery.

Main outcome measures. Heart rate (HR), mean arterial pressure (MAP), and frequencies of tachycardia, hypertension, bradycardia, and hypotension from the time of scalp block administration to 15 minutes after scalp incision (observation period).

Main results. There were 31 (70.45%) male and 13 (20.55%) female patients in this study. The patients' mean age was 42.97 ± 17.33 years. Mean values of MAP from 5 minutes before incision to 15 minutes after incision all significantly differed from mean baseline MAP. There were no significant changes in mean HR within the observation period ($p=0.2446$). Among the patients, 3/44 (6.82%) had at least one episode of hypertension, 7/44 (15.91%) had at least one episode of tachycardia, 8/44 (18.18%) had at least one episode of bradycardia, and 27/44 (61.36%) had at least one episode of hypotension during the observation period.

Conclusion. The mean MAP of patients in this study significantly decreased from baseline starting from 5 minutes prior to scalp incision to 15 minutes after scalp incision. Many patients had at least one episode of hypotension, while fewer patients experienced at least one episode of hypertension, tachycardia or bradycardia.

Keywords. cranial neurosurgery, heart rate, mean arterial pressure, scalp incision

INTRODUCTION

Pain associated with scalp incision, head pinning, periosteal detachment, dural opening, and brain retraction during neurosurgery can significantly increase a patient's heart rate and blood pressure from baseline values, and can potentially lead to venous hemorrhage, increase in intracranial pressure, brain edema, or even herniation.^{1,2} Performing scalp block prior to incision for a cranial neurosurgical procedure prevents pain transmission in the first-order neurons and stabilizes a patient's hemodynamics.^{2,3} Blunting the hemodynamic effects of pain by scalp block decreases drug requirements for intraoperative hypertension and tachycardia, and improves postoperative recovery and pain control.⁴⁻¹⁰

In our setting, we use a combination of ropivacaine and lidocaine for scalp block during cranial neurosurgery. Lidocaine is an intermediate-acting local anesthetic that acts as early as 2 minutes after injection.¹¹ The effects of lidocaine last up to 2 hours without epinephrine,¹¹ and up to 5 hours with epinephrine.¹² Ropivacaine, on the other hand, is a long-acting local anesthetic, which has a slower onset of action—about 3-15 minutes

after injection—but its effects, which last for at least 3 hours, usually cover the entire surgical time for most of our neurosurgical procedures.¹³ Compared to bupivacaine, ropivacaine is less likely to penetrate large myelinated motor fibers and is less lipophilic. These properties of ropivacaine are associated with reduced motor blockade, as well as lesser central nervous system toxicity and cardiotoxicity.¹⁴

IN ESSENCE

Pain at the start of cranial neurosurgery can cause significant increases in heart rate (HR) and mean arterial pressure (MAP).

In this study among patients given ropivacaine plus lidocaine scalp block for cranial neurosurgery, the patients' mean HR did not significantly change from scalp block administration (baseline) to 15 minutes after scalp incision. Compared to the patients' mean MAP at baseline, mean MAP values from 5 minutes before incision to 15 minutes after incision were significantly lower.

The use of scalp block can help maintain hemodynamic stability during cranial neurosurgery.



We did this study to determine the hemodynamic outcomes of patients undergoing scalp block, using ropivacaine plus lidocaine combination, for cranial neurosurgical procedures.

METHODS

Study design and setting

We conducted a retrospective cohort study based on review of medical records of patients who underwent cranial neurosurgery at Southern Philippines Medical Center (SPMC) from January 2015 to July 2016. An average of five neurosurgical procedures are performed daily in the main operating room of SPMC. In our institution, scalp block is performed after general anesthesia induction by infiltrating 5% ropivacaine plus 2% lidocaine into the typical anatomical sites where the supra-orbital, supratrochlear, zygomaticotemporal, auriculotemporal, greater occipital, and lesser occipital nerves emerge from the skull. Per anatomical site, 1-4 mL of the anesthetic combination is injected underneath the periosteum. Sterile preparation of the surgical site follows right after scalp block, and scalp incision is done within 10 to 15 minutes from scalp block.

Participants

Patients aged 18 years old and above who underwent either craniectomy or craniotomy under general anesthesia with ropivacaine plus lidocaine scalp block were eligible for inclusion in the study. To determine the minimum sample size for this study, we assumed that the average mean arterial pressure (MAP) of patients who underwent neurosurgery is 97.87 mmHg, with a standard deviation of 16.37 mmHg.¹⁵ Calculation was done in order for the study to detect a 10-mmHg-difference in mean MAP between two data groups as statistically significant. In a statistical test for comparison of two means carried out at a <5% level of significance, a minimum sample size of 44 will have 80% power of rejecting the null hypothesis if the alternative holds. We included a total of 44 eligible patients into this study.

Data collection

We collected the patient's age, sex, indication for neurosurgery, comorbidities, preoperative Glasgow Coma Scale (GCS) score, and American Society of Anesthesiologists physical status classification (ASA classification).

To determine the hemodynamic effects of

scalp block, we looked at the patients' serial heart rate (HR) and MAP within the following observation period: time of scalp block administration (baseline), 5 minutes before scalp incision (5BI), upon incision (UI), 5 minutes after incision (5AI), 10 minutes after incision (10AI), and 15 minutes after incision (15AI). We computed the MAP as the value of the diastolic blood pressure (DBP) multiplied by 2 and added to the value of the systolic blood pressure (SBP), then divided by 3. We also determined occurrences of tachycardia, bradycardia, hypotension, and hypertension, as well as the need for rescue analgesia postoperatively, among the patients. Tachycardia was considered when there was at least one episode of a >20% increase in HR from baseline value at any point during the observation period. Bradycardia was considered when there was at least one recorded HR of <60 beats per minute at any point during the observation period. Hypertension was considered when there was at least one episode of a >20% MAP increase from baseline value at any point during the observation period. Hypotension was considered when there was at least one episode of a >20% MAP decrease from baseline value at any point during the observation period. We also monitored the patients postoperatively to look for possible scalp block complications such as hematoma, swelling of the upper eyelid, and undesired facial nerve block.

Statistical analysis

We used Epi Info™ 7.2.1.10 and R version 3.4.1 to analyze the data. We summarized continuous data as means and standard deviations, and categorical variables as frequencies and percentages. To compare mean MAPs and mean HRs across time, we used repeated measures analysis of variance (ANOVA). We conducted simple pairwise comparisons after results of significant difference in repeated measures ANOVA. Two-sided level of significance was set at $p < 0.05$. We constructed the graphs shown in this article in Google Sheets.

RESULTS

The demographic and clinical profile of the 44 patients who underwent scalp block are shown in Table 1. There were 31/44 (70.45%) males and 13/44 (29.55%) females. The mean age of the patients was 42.97 ± 17.33 years. The most common indication for neurosurgery

Table 1 Demographic and clinical profile of patients

Characteristics	PNB (n=44)
Mean age $\pm$ SD, years	42.97 $\pm$ 17.33
Sex, frequency(%)	
Male	31 (70.45)
Female	13 (29.55)
Indication for neurosurgery, frequency (%) n=43	
Blunt head trauma	24 (55.81)
Brain tumor	9 (20.93)
Cerebrovascular accident	7 (16.28)
Gunshot wound	2 (4.65)
Hacking	1 (2.33)
Comorbidities, frequency(%)	
Hypertension	7 (15.91)
Pneumonia	1 (2.27)
ASA classification, frequency(%)	
ASA II	25 (56.82)
ASA III	13 (29.55)
ASA IV	5 (11.36)
ASA V	1 (2.27)
Mean GCS score $\pm$ SD	12 $\pm$ 3

ASA—American Society of Anesthesiologists; GCS—Glasgow Coma Scale.

was blunt head trauma (24/44, 55.81%). Some patients had coexisting hypertension (7/44, 15.91%) or pneumonia (1/44, 2.27%). Most of the patients (25/44, 56.82%) belong to ASA II classification. The mean GCS score of the patients was 12 ± 3 .

Table 2 and Figure 1 show the mean blood pressure, MAP, and HR readings during the observation period. The mean SBP, mean DBP and mean MAP values significantly differed across time (all p-values for repeated measures ANOVA <0.001). Pairwise comparisons revealed that the mean values of SBP, DBP and MAP from 5BI to 15AI all significantly differed from their respective baseline values. The mean HR readings had a decreasing trend, but the values across time were not significantly different from each other ($p=0.2446$).

Table 3 shows the proportions of patients who had at least one episode of significant

hemodynamic change during the study period. Hypertension occurred in 3/44 (6.82%) patients, tachycardia occurred in 7/44 (15.91%) patients, and bradycardia occurred in 8/44 (18.18%) of patients. Hypotension, which happened in 27/44 (61.36%) patients, was the most frequent hemodynamic change.

Postoperatively, 3/44 (6.82%) patients required rescue analgesia. None of the patients in this study experienced hematoma at the infiltration site, swelling of upper eyelids, or undesired facial nerve block.

DISCUSSION

Key results

In this group of patients undergoing cranial neurosurgery, the mean MAP values from 5 minutes prior to scalp incision to 15 minutes after scalp incision were significantly lower compared to the mean baseline MAP at the time of scalp block administration using ropivacaine plus lidocaine. Mean HR did not significantly change from scalp block administration up to 15 minutes after scalp incision. Hypotension was the most frequent hemodynamic change. A few patients had at least one episode of hypertension, tachycardia or bradycardia during the observation period.

Limitations

This study was limited only to adult patients undergoing cranial neurosurgery, and we only looked at the hemodynamic responses of the patients to ropivacaine and lidocaine. Children who undergo the same procedures for the same indications may have different hemodynamic response patterns. Systemic responses to the anesthetic agents may include neurotoxicity and cardiotoxicity, which we did not directly measure in this study. Moreover, this was a non-interventional study. The study had only one treatment arm using the same anesthetic cocktail. The decision to use the scalp block procedure on top of the standard anesthesia for cranial neurosurgery was made by the patients' respective attending

Table 2 Mean systolic blood pressure, diastolic blood pressure, mean arterial pressure, and heart rate across time

Characteristics	Baseline n=44	5BI n=44	UI n=44	5AI n=44	10AI n=44	15AI n=44	p-value
Mean systolic blood pressure $\pm$ SD, mmHg	137.32 $\pm$ 26.45	113.30 $\pm$ 24.05	111.02 $\pm$ 21.82	110.07 $\pm$ 19.72	107.52 $\pm$ 20.29	104.07 $\pm$ 17.30	<0.0001
Mean diastolic blood pressure $\pm$ SD, mmHg	76.80 $\pm$ 16.06	62.86 $\pm$ 15.07	61.09 $\pm$ 14.80	61.18 $\pm$ 14.78	58.72 $\pm$ 12.76	57.36 $\pm$ 12.76	<0.0001
Mean mean arterial pressure $\pm$ SD, mmHg	96.97 $\pm$ 18.46	79.67 $\pm$ 17.26	77.73 $\pm$ 16.49	77.48 $\pm$ 15.57	74.99 $\pm$ 14.64	72.93 $\pm$ 13.37	<0.0001
Mean heart rate $\pm$ SD, beats per minute	89.07 $\pm$ 25.01	83.32 $\pm$ 21.58	82.05 $\pm$ 21.35	80.69 $\pm$ 21.34	78.68 $\pm$ 20.27	78.82 $\pm$ 22.45	0.2446

Baseline—at the time of scalp block administration; 5BI—5 minutes before scalp incision; UI—upon scalp incision; 5AI—5 minutes after incision; 10AI—10 minutes after incision; 15AI—15 minutes after incision.

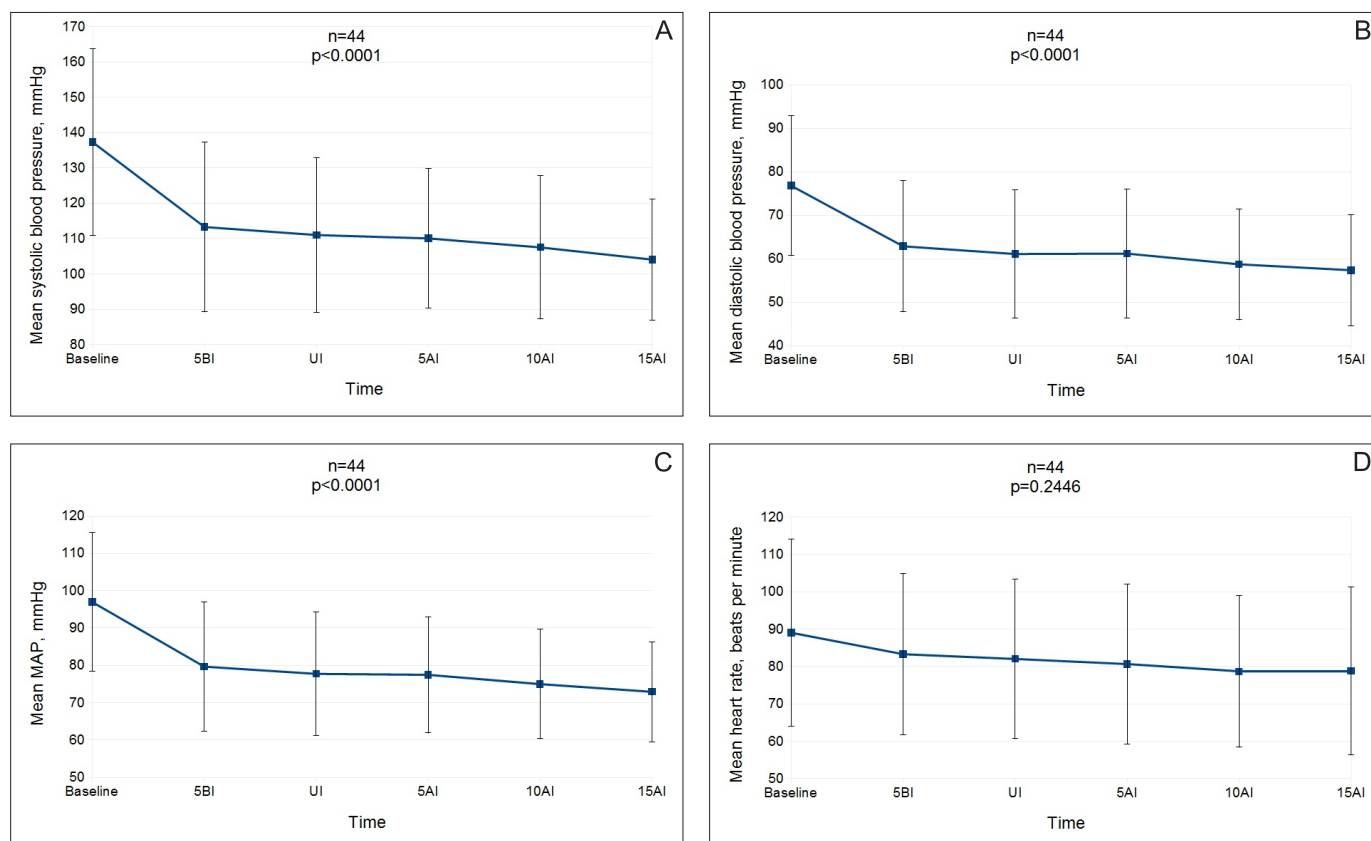


Figure 1 Systolic (A) and diastolic (B) blood pressures, mean arterial pressure (MAP; C), and heart rate (D) graphs of patients who underwent cranial neurosurgery at the time of scalp block administration (Baseline), 5 minutes before incision (5BI), upon incision (UI), 5 minutes after incision (5AI), 10 minutes after incision (10AI), and 15 minutes after incision (15AI).

anesthesiologists, and we merely observed the outcomes after the procedures.

Interpretation

HR and MAP, as well as the levels of the stress hormones adrenocorticotrophic hormone (ACTH) and cortisol, significantly increase upon insertion of skull pins into the periosteum during neurosurgery.² Pain associated with scalp incision, head pinning, periosteum detachment, and dural opening may result in tachycardia and hypertension.¹⁶ In one study among patients given scalp block before head pinning for craniotomy, 53.3% of pa-

tients who received placebo scalp block required additional medications to control intraoperative hypertension and tachycardia, while only 3.3% of patients given bupivacaine scalp block and 6.6% of patients given levobupivacaine scalp block needed the extra medications.⁸

Scalp block using bupivacaine with or without epinephrine helps stabilize hemodynamics and decreases plasma cortisol and ACTH levels during neurosurgery.^{2 4 6 8 17-19} On the other hand, either direct infiltration of bupivacaine at pin insertion sites or opioid administration alone, without scalp block, significantly increases HR, MAP, cortisol, and ACTH during neurosurgery.² However, bupivacaine is cardiotoxic.²⁰⁻²³

The combination of lidocaine and ropivacaine provides faster onset and longer duration of anesthetic action, resulting in better pain control. The onset of action of lidocaine is approximately 2-10 minutes,^{11 13} and its duration of action is up to 2 hours if given alone^{11 13} and up to 5 hours if administered with epinephrine.¹² The onset of action of ropivacaine, a long acting amide,¹⁴

Table 3 Hemodynamic changes

Outcomes*	Values n=44
Bradycardia, frequency (%)	8 (18.18)
Tachycardia, frequency (%)	7 (15.91)
Hypotension, frequency (%)	27 (61.36)
Hypertension, frequency (%)	3 (6.82)

*At least one episode from scalp block administration to 15 minutes after scalp incision.

occurs at 10-15 minutes, and the duration of action lasts for 3 to 12 hours.¹³ Compared to bupivacaine, ropivacaine acts faster when used as peripheral nerve block and is less cardiotoxic.¹⁴

Among the patients in this study, 15.91% had at least one episode of tachycardia, and 6.82% had at least one episode of hypertension during the observation period. Scalp block involves administration of local anesthesia around the nerves of the scalp. This provides analgesia for a certain period of time.²⁴ The addition of local anesthesia to decrease the impact of local nerve stimulation at the start of cranial neurosurgery attenuates the anticipated hemodynamic responses in many patients.²⁵

Some of the patients had at least one episode of bradycardia, and 61.36% had at least one episode of hypotension during the observation period. Mild hypotension is observed in general anesthesia due to the reduction of cardiac output and systemic vascular resistance brought about by intravenous and inhalational agents.²⁶ More rarely, severe bradycardia and hypotension after scalp block can happen as a result of the stimulation of any branch of the trigeminal nerve²⁷—including the supraorbital, supra-trochlear, zygomaticotemporal, and auriculotemporal nerves—during anesthetic infiltration. The mechanical compression or stretch of these nerves during local anesthetic infiltration can trigger the trigeminal cardiac reflex, which manifests as bradycardia and hypotension.²⁷⁻²⁸

In this study, only three patients needed postoperative rescue analgesia. C nerve fibers richly innervate the scalp, and ropivacaine has selective action on sensory A δ and C fibers.²⁹ Moreover, scalp block with ropivacaine has been shown to decrease postcraniotomy pain.³⁰

None of the patients in this study experienced complications of the procedure around the infiltration site. Scalp block complications, which are few and rare, include hematoma at the site of infiltration, swelling of the upper eyelid, and undesired facial nerve block.³¹⁻³² Hematoma formation and swollen upper eyelids are direct consequences of blood and fluids that accumulate along the aponeuroses during local anesthesia infiltration. Undesired facial nerve block occurs when, upon blockade of the auriculotemporal nerve, the adjacent facial nerve is also inadvertently blocked.³¹⁻³³

Generalizability

This study was done among patients who underwent cranial neurosurgery under general anesthesia with scalp block. We included male and female patients who were, on average, within middle age. The ranges of indications for neurosurgery and ASA classifications across all patients were broad. The use of ropivacaine plus lidocaine on patients for scalp block prior to scalp incision, on top of general anesthesia, provided acceptable hemodynamic stability during the part in the surgery when tachycardia and hypertension would have been expected in most of the patients. The use of both the technique and the local anesthetic combination can be reasonably applied to adult patients undergoing similar procedures.

CONCLUSION

Compared to the mean baseline MAP upon scalp block administration using lidocaine and ropivacaine, the mean MAP of patients who underwent cranial neurosurgery significantly decreased from 5 minutes before scalp incision to 15 minutes after scalp incision. There was no significant change in mean HR from administration of scalp block up to 15 minutes after incision. The most common hemodynamic change was hypotension. Some patients experienced at least one episode of hypertension, tachycardia or bradycardia.

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Ethics approval

This study was reviewed and approved by the Department of Health XI Cluster Ethics Review Committee (DOH XI CERC reference P16030901).

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Port-wine stain and glaucoma in a 29-year-old male

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A diagnosis of Sturge-Weber Syndrome (SWS) is made when two out of three criteria—facial port-wine birthmark, increased ocular pressure, and leptomeningeal angiomas—are present.¹ The facial lesion is a hamartoma that arises from vascular tissue, producing the characteristic port-wine hemangioma of the skin along the trigeminal nerve distribution.^{2,3}

Glaucoma occurs in up to 70% of patients with SWS and is usually diagnosed during infancy, but it can develop later during adolescence or adulthood.¹ For late-onset glaucoma, the initial management consists of topical aqueous suppressants and miotics. If topical medications fail, trabeculectomy is the procedure of choice. A cyclodestructive procedure targeting the secretory epithelium of the ciliary body may be performed on eyes with failed medical and surgical interventions.⁴

A 29-year-old man came to our clinic due to eye pain and redness of four years' duration, associated with occasional episodes of headache. There were no accompanying seizures or other neurological symptoms reported. Physical examination revealed a left-sided, flat, well-defined violaceous red patch within the dermatome distribution of the ophthalmic branch of the trigeminal nerve, with irregular borders extending from the left upper eyelid inferiorly to the hairline above the frontal area superiorly, and from one centimeter medial to the left inner canthus medially to the left outer canthus laterally (port-wine stain; Figure 1A). The patient had visual acuity of 20/20 on both eyes.

We found more significant findings on the left eye. Intraocular pressure was 30 mmHg. Slit lamp biomicroscopy revealed dilated and tortuous perilimbal vessels (Figure 1B). Gonioscopic examination revealed open anterior chamber angles on all quadrants. On funduscopy, the optic nerve had a cup-to-disc ratio of 0.7 (Figure 1C). Retinal vessels were noted to be dilated and tortuous. The rest of the ophthalmologic findings were unremarkable. The patient, having port-wine stain and glaucoma, was diagnosed to have Sturge-Weber syndrome.

The patient was initially given timolol eyedrops to control the intraocular pressure (IOP). However, IOP ranged from 24–30 mmHg over a 1-month period. Automated perimetry revealed a temporal quadrantanopsia on the left eye. Both the increase in cup-to-disc ratio and temporal quadrantanopsia were highly suggestive of progressing optic nerve damage and visual field defect on the affected eye.

The patient underwent trabeculectomy on the left eye. On the first postoperative day, the IOP went down to 13 mmHg, the conjunctival bleb was formed and located superonasally, the anterior chamber was shallow, and visual acuity was 20/100. Two weeks after trabeculectomy, the anterior chamber deepened and visual acuity returned to 20/20. A repeat automated perimetry after trabeculectomy revealed no progression of the scotoma (Figure 1D).

Acknowledgments

We would like to thank Mr Rodel Roño for taking the patient's photo, Dr Elisa Rae Co and Dr Joanne Kate Martinez of the Department of Dermatology in Southern Philippines Medical Center for helping us write the specific description of the patient's physical examination findings, and Dr Luisito Gahol Jr for helping us in the surgical planning for the patient.

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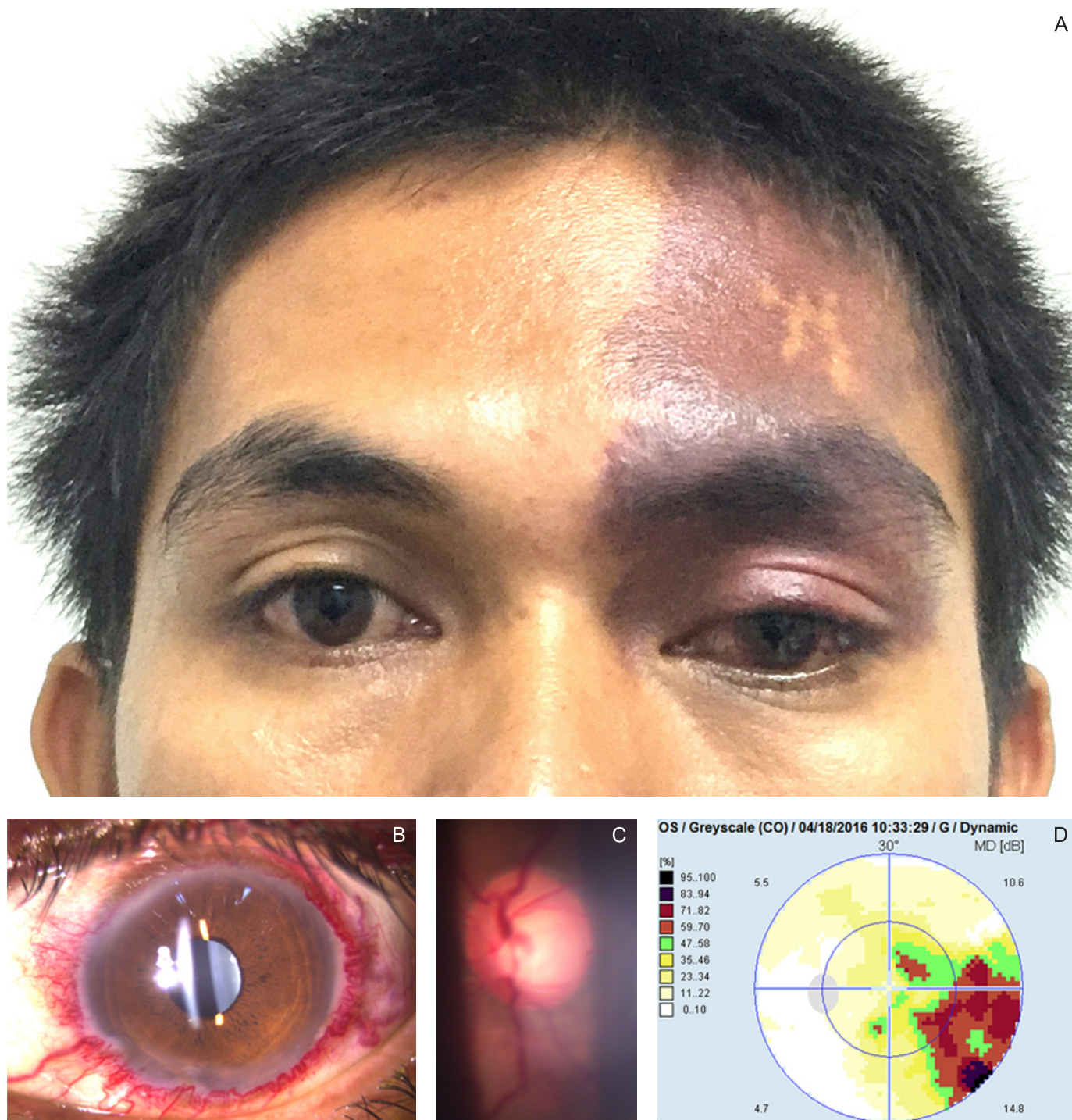


Figure 1 Flat, well-defined, violaceous red patch with irregular borders (port-wine stain) on the left frontal area (A). Dilated and tortuous perilimbal vessels in the left conjunctiva (B). Cup-to-disc ratio of 0.7 and tortuous and dilated vessels on funduscopy of the left eye (C). Report of automated perimetry test showing left temporal quadrantanopsia (D).

Licensed government and private hospitals in the Philippines—2016

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Pursuant to Republic Act No. 4226, otherwise known as the Hospital Licensure Act of 1965,¹ the Department of Health (DOH) issued Administrative Order No. 2012-0012 in order to stipulate the “Rules and Regulations Governing the New Classification of Hospitals and Other Health Facilities in the Philippines.”² According to the Administrative Order, the classification of hospitals all over the Philippines according to service capability (Level I, Level II, or Level III) is based on the availability of certain structures and services within the hospital, as well as on the hospital’s capability to train physicians under accredited residency training programs in Internal Medicine, Obstetrics-Gynecology, Pediatrics, and Surgery.²

This infographic is a visualization of the “List of Licensed Government and Private Hospitals as of December 31, 2016,” which was made available online by the DOH Health Facilities and Services Regulatory Bureau (HFSRB).³ In 2016, out of the 1,224 licensed hospitals throughout the country, 434 (35.46%) were government-owned and 790 (64.54%) were private hospitals. Among government-owned hospitals, 334 (76.96%) had Level I, 47 (10.83%) had Level II, and 51 (11.75%) had Level III service capabilities. Among private hospitals, 455 (57.59%) had Level I, 269 (34.05%) had Level II, and 64 (8.10%) had Level III service capabilities. Four hospitals in Region VII, two government-owned and two private, were classified as having “Maternal and Child” service capability. Region IV-A (CALABARZON) had the most number of hospitals (217 hospitals) among the regions in the Philippines, with 142 Level I hospitals, 68 Level II hospitals, and 7 Level III hospitals. Region XIII (Caraga Region) had the least number of hospitals in the country, with only 18 hospitals, 10 of which were Level I and the remaining 8 were Level II hospitals. Aside from Region XIII (Caraga Region), other regions that did not have Level III hospitals in 2016 include Region IV-B (MIMAROPA) and the Autonomous Region in Muslim Mindanao.

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LICENSED GOVERNMENT & PRIVATE HOSPITALS IN THE PHILIPPINES

2016

SERVICE CAPABILITY OF ALL HOSPITALS BY REGION

Region I	#	%
Level I	57	▲ 66
Level II	25	◆ 29
Level III	4	● 5

Region II	#	%
Level I	46	▲ 88
Level II	10	◆ 18
Level III	1	● 2

CAR	#	%
Level I	19	▲ 76
Level II	4	◆ 16
Level III	2	● 8

NCR	#	%
Level I	72	▲ 44
Level II	35	◆ 21
Level III	56	● 34

Region III	#	%
Level I	117	▲ 70
Level II	39	◆ 23
Level III	10	● 6

Region IV-A	#	%
Level I	142	▲ 65
Level II	68	◆ 31
Level III	7	● 3

Region IV-B	#	%
Level I	21	▲ 84
Level II	4	◆ 16

Region V	#	%
Level I	30	▲ 59
Level II	18	◆ 35
Level III	3	● 6

Region VI	#	%
Level I	37	▲ 61
Level II	15	◆ 25
Level III	9	● 15

Region VII	#	%
Level I	32	▲ 53
Level II	15	◆ 25
Level III	9	● 15
Mother & Child	4	● 7

Region VIII	#	%
Level I	36	▲ 78
Level II	8	◆ 17
Level III	2	● 4

Region IX	#	%
Level I	34	▲ 77
Level II	9	◆ 20
Level III	1	● 2

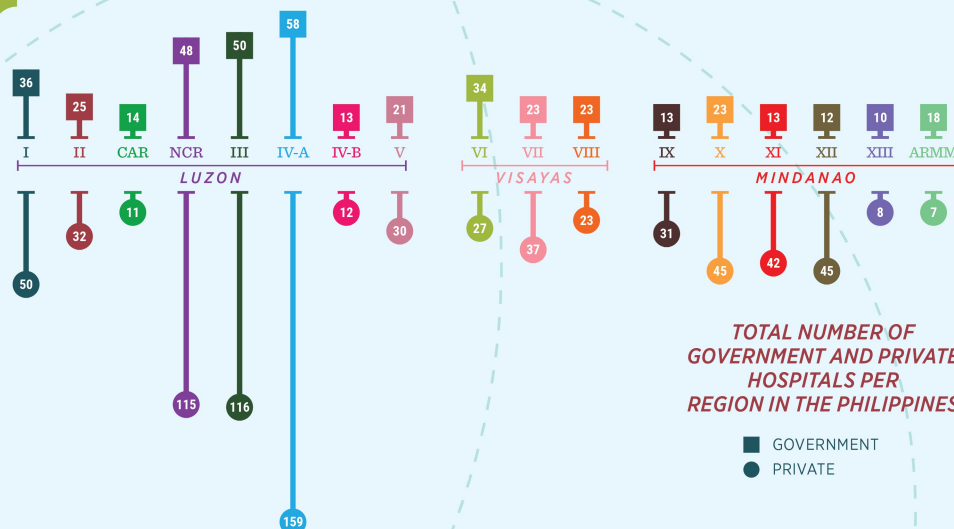
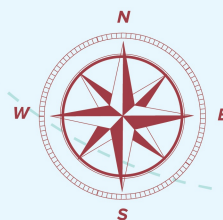
Region X	#	%
Level I	40	▲ 59
Level II	25	◆ 37
Level III	3	● 4

Region XI	#	%
Level I	32	▲ 58
Level II	18	◆ 33
Level III	5	● 9

Region XII	#	%
Level I	41	▲ 72
Level II	13	◆ 23
Level III	3	● 5

Region XIII	#	%
Level I	10	▲ 56
Level II	8	◆ 44

ARMM	#	%
Level I	23	▲ 56
Level II	2	◆ 44



Southern Philippines Medical Center inpatient admissions for the year 2016

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The Southern Philippines Medical Center (SPMC) is the largest hospital in the Philippine Department of Health system, with an approved bed capacity of 1,200, by virtue of Republic Act 9792.¹ It is situated in one of the most populous Philippine cities, within an administrative region that has six cities, 43 municipalities, and a population of 4.89M as of 2015. Being an end-referral center with several highly specialized clinical services, SPMC also caters to the health needs of patients from different parts of Mindanao and the country. There are already proposals to further increase the bed capacity of SPMC to 1,500, which will place the hospital among the biggest tertiary-level teaching/training health facilities in the country.²

This infographic shows the number of inpatient admissions in SPMC from January 1 to December 31, 2016, which totalled 73,545. Admissions to the Institute of Psychiatry and Behavioral Medicine in SPMC are not included in this count. The clinical services with the highest numbers of inpatient admissions were: Pediatrics (25,354 admissions), Obstetrics-Gynecology (20,058 admissions), Internal Medicine (13,699 admissions), and Surgery (9,059 admissions). Inpatient admissions were highest in July (7,099 admissions) and August (7,074 admissions), and lowest in February (5,226 admissions), March (5,133 admissions), and April (5,288 admissions).

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INPATIENT ADMISSIONS FOR THE YEAR 2016

TOTAL
ADMISSIONS
PER CLINICAL
SERVICE

Family
Medicine
1,716
admissions

Internal
Medicine
13,699
admissions

Obstetrics -
Gynecology
20,058
admissions

Ophthalmology
265
admissions

Orthopedics
2,255
admissions

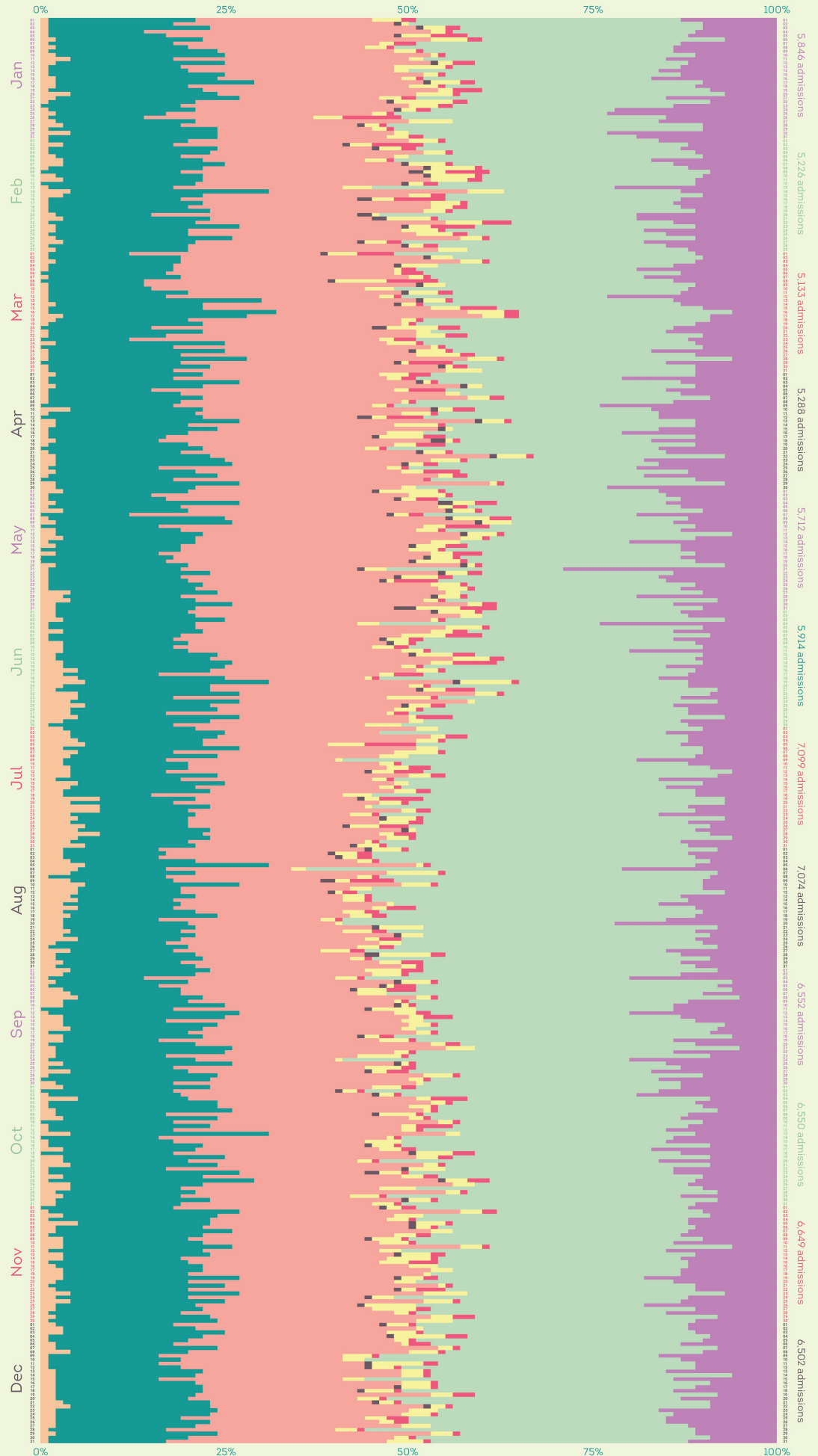
Otolaryngology -
Head and
Neck Surgery
1,139 admissions

Pediatrics
25,354
admissions

Surgery
9,059
admissions

Grand total
for 2016
73,545 admissions

PROPORTIONATE DAILY ADMISSIONS PER CLINICAL SERVICE *



*Dataset for this infographic does not include daily admissions from the Institute of Psychiatry and Behavioral Medicine in SPMC.

The Kidney Transplant Program of Southern Philippines Medical Center

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Southern Philippines Medical Center (SPMC) started its Kidney Transplant Program in 2004. To date, a total of 106 kidney transplant procedures have been performed in SPMC, involving 28/106 (26.42%) female and 78/106 (73.58%) male kidney recipients. The average age of the recipients was 42 years old (range: 17 to 72). From 2004 to 2012, an average of five kidney transplants were performed in SPMC per year. In 2012, the Philippine Health Insurance Corporation (PhilHealth) listed “End Stage Renal Disease Eligible for Kidney Transplant” as one of the conditions covered by the Case Type Z Benefit Package^{1 2} and included SPMC among the first contracted hospitals to provide kidney transplant services under the package.³ The benefit package offers a flat amount to cover the entire course of health care for the condition—from medical evaluation of donor and transplant candidate, to transplantation surgery, to initiation of immunosuppression and anti-rejection therapies, and to post-transplant monitoring of donor and recipient.² The PhilHealth Z Benefit Package made kidney transplant services more affordable to patients who need them. SPMC started implementing the package in 2013, and since then, an average of 14 kidney transplants have been performed in SPMC per year. By 2019, SPMC will open the first Kidney Transplant Institute in Mindanao. It will be a dedicated state-of-the-art facility that will provide better access to health care among Filipino patients with end-stage renal disease who need kidney transplant services.

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None declared

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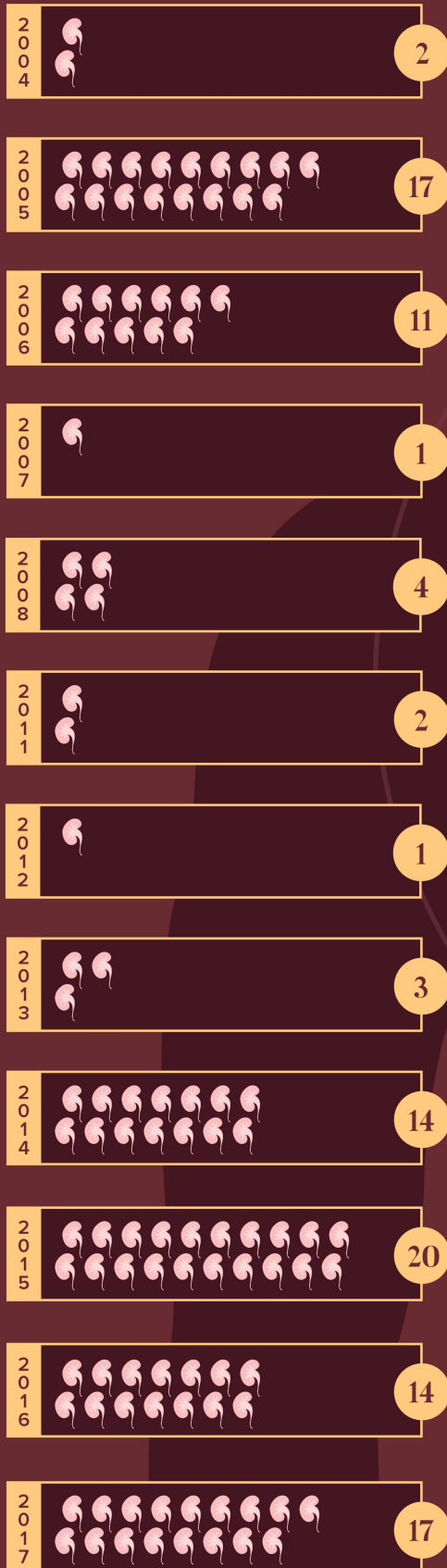
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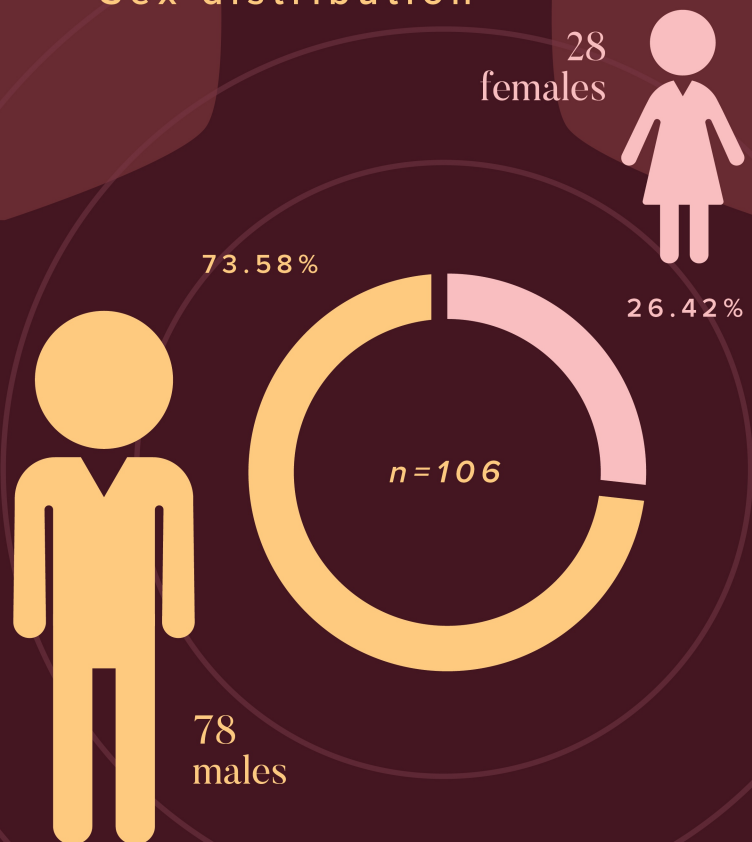
Number of
patients who
underwent
kidney
transplant
since 2004



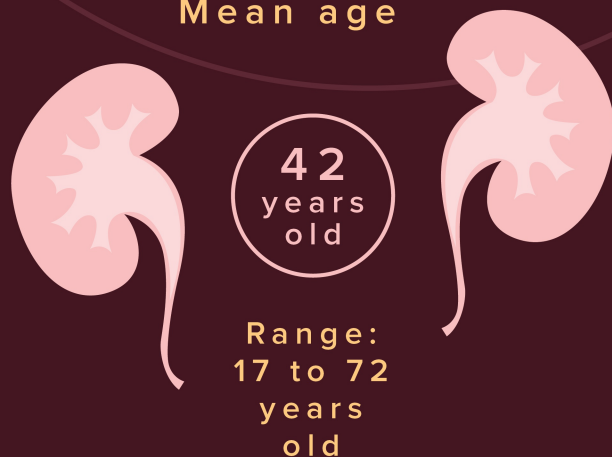
THE Kidney

TRANSPLANT PROGRAM
OF SOUTHERN PHILIPPINES
MEDICAL CENTER

Sex distribution



Mean age



Author guidelines

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Authors should follow the CARE Checklist (Table 1) in preparing the manuscript for case report.

Case report submissions should contain the following sections:

1. Title: should state the final diagnosis
2. Authors and affiliations
3. Abstract: up to 250 words (refer to the CARE checklist for specific contents)
4. Keywords: 2 to 5 words or phrases that do not repeat the title
5. Introduction
6. Clinical features
7. Diagnostic approaches
8. Therapeutic approaches
9. Outcomes
10. Discussion
11. References
12. Acknowledgments

Use 2000 words or less for the main text of the report (excluding title, abstract, tables, figures, references, and acknowledgments).

Every attempt should be made in order to obtain an affidavit of consent to publish the article and photos that describe a patient. The affidavit should be duly executed by the patient or by the patient's legally acceptable representative. You may use the SPMC template provided by the Hospital Research and Publication Office or the Legal Office for this purpose. Submit a copy of the affidavit along with the case report and photos of the patient.

B. Research reports

Authors should follow the appropriate EQUATOR Network checklist for reporting research. Listed in Table 1 are the common study/article types and their corresponding checklists. Also visit the EQUATOR Network website for a complete list of reporting guidelines and checklists.

Research report submissions should contain the following sections:

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4. Keywords: 2 to 5 words or phrases that do not repeat words in the title

5. Introduction

6. Methods

7. Results

8. Discussion

9. References

10. Acknowledgments

Use 5000 words or less for the main text of the report (excluding title, abstract, tables, figures, references, and acknowledgments).

The conduct of research involving humans must have been reviewed and approved or favorably endorsed by an Institutional Review Board or Ethics Review Committee (IRB/ERC). Submit a copy of the Certificate of Approval or Certificate of Favorable Endorsement along with the research report. If the research has been declared exempt from review, a Certificate of Exemption from Ethics Review issued by an IRB/ERC may be submitted in lieu of an approval or endorsement to conduct the research.

C. Book reviews

Reviews of books relevant in health care services and the health professions may be submitted for publication. Book review submissions should contain the following:

1. Book details: title and author/s or editor/s of the book, ISBN
2. Author of the book review and affiliation
3. General contents and scope of the book
4. Significance of the book to its readers
5. (Optional) comparison of the book with other books within the same area or topic
6. References
7. Acknowledgments

Use 2000 words or less for the main text of the review (excluding title and references).

D. Clinical images

Images of unreported, unexpected or unusual physical examination, or intra-operative, histopathologic, radiographic or other medical imaging findings may be submitted for publication. Up to four photos can be used to describe a condition.

Submissions of this type should contain the following sections:

1. Title: should state the final diagnosis
2. Authors and affiliations
3. Brief clinical description, which should include: patient's age and

Table 1 Reporting guidelines and checklists (<http://www.equator-network.org/>)

Study/article types	Checklists and diagrams
Case report	CARE checklist
Randomized controlled trial	CONSORT checklist; CONSORT flow diagram
Observational studies (cohort, case-control, cross-sectional)	STROBE checklist
Meta-analysis and systematic reviews	PRISMA checklist; PRISMA flow diagram
Diagnostic accuracy studies	STARD checklist; STARD flow diagram
Prediction model for individual prognosis or diagnosis	TRIPOD
Qualitative studies	COREQ
Economic evaluation	CHEERS

sex, chief complaint, brief clinical history, physical examination findings, relevant diagnostics, final diagnosis, relevant therapeutics, outcomes, description of the individual photos

4. Acknowledgments

Use 300 words or less for the brief clinical description.

Every attempt should be made in order to obtain an affidavit of consent to publish the article and photos that describe a patient. The affidavit should be duly executed by the patient or by the patient's legally acceptable representative. You may use the SPMC template provided by the Hospital Research and Publication Office or the Legal Office for this purpose. Submit a copy of the affidavit along with the photos and brief clinical description of the patient.

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These articles are usually commissioned, but we welcome submitted editorials on topics relevant to health care services. Use 1000 words or less for the main text of the article (excluding title and references). In the submission, include a list of authors and their affiliations, statements of competing interests and, as appropriate, an acknowledgment section.

F. Perspectives

These are brief essays based on personal experiences with health care services. We welcome submissions from different stakeholders of health care. Use 1000 words or less for the main text of the article (excluding title and references). In the submission, include a list of authors and their affiliations, statements of competing interests and, as appropriate, an acknowledgment section.

G. Infographics

These are items or sets of information rendered in visual format. Infographics may contain health or health-related statistics, educational materials, program flow charts, clinical reports, research results, or any newly generated knowledge related to health care services. We accept drafts, sketches, or proposals, and we offer assistance in rendering proposed ideas into final publishable formats. Infographics should be accompanied by a short article, with up to 500 words in the main text and up to 20 references. In the submission, include a list of authors and their affiliations, statements of competing interests and, as appropriate, an acknowledgment section.

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