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Review Telemedicine in ambulatory anesthesia and surgery: possibilities and limitations

Laguillo Cadenas JL, Echevarría Moreno

Servicio de Anestesiología y Reanimación. Hospital de Valme, Sevilla, Spain

Abstract

Telemedicine is defined as the use of information and communication technologies with the purpose of providing health care remotely. In the perioperative environment, anaesthesiology has made use of it on a few occasions, mainly oriented towards the preanesthetic study. Moreover, the expansion of day surgery could be supported by telemedicine as a

communication tool with patients at home, as evidenced by our national experience. The implementation of these communication systems is faced with a long series of potential barriers, and the lack of evidence of clinical benefits is the main obstacle to their widespread use.

Key words: Telemedicine, Anesthesia, Ambulatory surgery.

Original 1 Complications after hospital discharge: 24 months follow-up by an ambulatory surgical unit

Arance García M, Pérez Torres MC, Galafate Andrades Y, Martín-Gil Parra R, Docobo Durántez F

Unidad de Cirugía Mayor Ambulatoria. Hospital Universitario Virgen del Rocío, Sevilla, Spain

Abstract

Introduction: Postoperative recovery is, possibly, the most important period in ambulatory surgery. Patient- selection, anaesthetic and surgical techniques are geared for a safe post-discharge stay at home and satisfaction of patients and their family.

Material and methods: Follow-up at home is supervised by telephone calls to the patients made by the hospital nurses after 24 h-48 h or by visits to the hospital the first postoperative day. The hospital provided all patients or family with a telephone number to ring at any time for advice on outcome, difficulties or to contact their physicians. These phone calls by patients to the hospital are recorded by nurses of the ambulatory unit. This study is a retrospective analysis of

these calls recorded from January 1st 2006 to December 31st 2007.

Results: Of the 6242 patients who underwent ambulatory surgery, 224 called our unit after discharge. Severe to moderate pain was the main reason for the call in 85 (38.39%) cases, bleeding in 42 cases (18.75%) and fever in 37 cases (16.7%).

Most of the calls to the unit were made after 72 h following discharge from the outpatient unit (75.87%).

Conclusions: Providing a means of direct contact of patients with qualified personnel helps us detect and analyze postoperative complications and treatments and establish strategies to prevent them as well as improve our quality indicators.

Key words: Postoperative outcomes, Postoperative follow-up, Postoperative pain, Ambulatory surgery.

Original 2 Incidence of hospital admissions in patients undergoing ambulatory ophthalmological surgery. Analysis and results of the first year

Bellido Castro ML, Capitán Vallvey JM, Garbín Fuentes I

Servicios de Cirugía Mayor Ambulatoria y ⁱOftalmología, Complejo Hospitalario de Jaén, Spain

Abstract

Objective: To analyse the causes for which different patients undergoing ophthalmologic ambulatory surgery were admitted to hospital and the influence this has as a quality indicator.

Material and method: Retrospective descriptive study of all the patients operated on by the Department of Ophthalmology during the year

2006. The data analysed was the following: age, sex, diagnosis, surgical techniques and the cause for admission. A total of 1,412 patients were scheduled to be operated on, out of whom 699 (49.50%) were men, 713 (50.49%) were women, with an average age of 58.5 years and ages ranging from 15 to 104. 1337 (94.68%) patients were operated on for:

cataracts 1053 (78.75%), glaucoma 31 (2.31%), cataracts + glaucoma 11 (0.82%), dacryocystitis 52 (3.88%), pterygium 95 (7.10%), conjunctive verruca eyelid tumour 32 (2.39%), chalazion 27 (2.01%), miscellanea 36 (2.69%). Suspended operations were 75, post-surgical admissions, 8.

Results: Post-surgical admissions were 8 (0.5%): men, 6 (75%), women, 2 (25%), age range 34-83 years old. Operations performed: 4 cataracts (Phacoemulsification + IOL), 1 vitrectomy, 3 glaucoma (trabeculectomy). ASA II in six cases, ASA III in two. Local anaesthetic was employed on two patients, local-assisted in two, topical in three, retrobulbar in one. Concomitant pathologies were: silicosis, high blood pressure HBP (73 years old); meningioma (55 years old); HBP, CVA, insulin-dependent diabetic undergoing treatment with a platelet anticoagulant (67 years old); epilepsy, Virus C hepatitis, alcoholic neurosis (34 years old); lymphoma (62 years old); HBP, insulin-dependent diabetic, intraventricular blockage of the right branch, under treatment with anticoagulants (77 years old); two cases of HBP (83 and 74 years old). The reasons for admission after surgery were the following: bloody sputum, one patient undergoing treatment for pain in the Pain Unit;

pupil blockage and acute glaucomatous crisis; painful blind eye, epileptic seizure; haemorrhage in the eyeball; luxation of the crystalline during the surgery; un-controlled HBP in both cases.

Quality indicators: substitution index 87.90%; admission ratio 0.5%; index of re-admissions for major complications 0.2%; visits in the emergency department for minor complications without admission, 2-3%; suspension ratio 5.31%.

Conclusions: Our ratio of admissions in the ophthalmology wing for ambulatory surgery shows good surgical management of our patients. As a quality indicator in this analysis, we can boast a highly satisfactory ratio of postoperative admissions after the first year of operation. The percentage of postoperative admissions is directly related to concomitant pathologies and postoperative complications. The quality indicators studied comply with standards for ambulatory surgery.

Key words: Ambulatory surgery, Ophthalmology, Quality indicators, Nursing.

Original 3 Planning and impact of a one-stop surgery scheme in pediatric surgery

López Álvarez-Buhilla P, Astigarraga Aguirre I¹, Torres Piedra C, Azcona Zorrilla MI, Olaizola Mendibil², Latorre Guisasola M³

Servicios de Cirugía Infantil, ¹Pediatría y ²Quirúrgicos. ³Unidad de Calidad. Hospital de Cruces. Barakaldo, Vizcaya

Abstract

Introduction: By one-stop surgery we mean the performance of both pre-surgery assessment and surgical procedure on the same day.

Material and methods: We report our experience with a pilot study of a one-stop surgery in the province of Bizkaia, with a population of 124,494 children aged 1 to 14 years. Under the new scheme, the average of four visits per patient to the hospital's outpatient clinics was cut down to only one. Diagnosis and pre-surgery assessments were made by the children's Primary Care Paediatricians at their NHS offices.

Results: One hundred and twenty children were treated over one year. They had abdominal wall, genital or soft tissue surgery. Only two

developed minor complications. Families were generally satisfied with the quality of the medical care and 98% scored it as good or very good.

Conclusions: We think that one-stop surgery is a breakthrough in ambulatory surgery. It does not only dramatically lower the number of visits to the hospital's outpatient clinics, but also the waiting time for surgery, the costs, and the surgeon's workload, and helps streamline the Public Health Services and the quality of the medical care as perceived by both patients and families. Ensuring a close relationship between Paediatric Surgeons and Primary Care Paediatricians is essential.

Key words: One-stop surgery, Children.

Review **Difficult Airway Management in Ambulatory Surgery**

Laguillo Cadenas JL, Echevarría Moreno

Servicio de Anestesiología y Reanimación. Hospital de Valme, Sevilla, Spain

Abstract

The management of a difficult airway in ambulatory surgery is no different from in any other unit, except that Laryngeal masks are used more often. Whenever we suspect a difficult airway, and after evaluating it carefully, we should follow the algorithms proposed by any of the

different scientific societies and use any of the masks which we have at hand and with which we are most familiar.

In this article, we revise the most effective devices for the management of a difficult airway in ambulatory surgery.

Key words: Difficult airway, Difficult intubation, Difficult ventilation, Fibroscope, Laryngeal tubes, Video-laryngoscope, Glidescope, Airtraq, Laryngeal masks, McCoy laryngoscope, Ambulatory surgery.

Original 1 **Laparoscopic adjustable gastric band for the surgical treatment of obesity. A technique which is possible in ambulatory surgery**

Abstract

Objective: To show our experience in the laparoscopic surgical treatment of obesity using the adjustable gastric band (AGBL) included in a program for day surgery.

Patients and method: Between June 2006 and December 2007 we performed the procedure on 57 obese patients, consecutively, using the AGBL technique. The selection criteria used to establish the surgical indications is based on the American National Institute of Health and the SECO. The variables analyzed were: surgical time, time until discharge criteria are met, time spent in hospital post surgery, the overall time of hospital stay (from admittance until leaving) and complications.

Results: All patients were discharged within 24 hours post-surgery. The hospital postoperative stay was 13 hours (r: 11–20 h). The total average

period of time spent in the hospital was 20 hours (with one night). Average time before reaching discharge criteria was 6 hours. Average surgical time was 118 min (r: 80–164 m). We have not registered any intra-operative complications. No reconversions. No re-operations. No re-admissions to hospital. No complications during the first 30 days post surgery. One case of subcutaneous port rotation of reservoir that required a repositioning under local anesthesia. Three esophageal disfunctions.

Conclusions: The AGBL procedure performed by multidisciplinary teams dedicated specifically to the treatment of morbid obesity can be included in a program for ambulatory surgery. Most patients recover and are discharged before the anticipated 6 postsurgical hours.

Key words: Morbid obesity, Bariatric surgery, Adjustable gastric band, Ambulatory Surgery, Short-term stay programs.

Original 2 **Creating an out-patient surgical unit in a general hospital**

Abstract

Objective: The objectives of this study are to study the activity of our out-patient surgical unit during 2006 and the quality of the care given.

Material and method: The Ambulatory Unit (UCMA), a type II integrated unit, was inaugurated in 2005, with the participation of different Departments practicing surgery, using protocols for admission, nursing care and anaesthesia.

Results: 1.592 patients underwent surgery (an 80.91% increase over 2003) with: 53.52% males, 59.74% for ophthalmological surgery, 9.65 patients/day in the UCMA, 75.56% were ASA I, 1.9% cancellations,

4.96% unexpected admissions (74.69% females), 0.3% re-admissions, 97% excellent satisfaction in UCMA and 0% mortality.

Conclusions: Increase of surgical activity through CMA programs allows the hospital to operate on a large number as out-patients, which in turn allows hospital resources to be dedicated to other processes. Quality indexes lead us to affirm that this is a reliable and safe means of treatment, with an excellent degree of patient's acceptance and satisfaction.

Key words: Out-patient surgery (CMA), Quality indexes.

Original 3 Evaluation Of A Telemedicine System For A High Resolution Consultation In Ambulatory Surgery

Abstract

Objective: The intention of the present study is, first of all, to evaluate the diagnostic capacity of a telemedicine system based on a tool of videoconference, used to optimize the High Resolution Consultation of the Unit of Ambulatory Surgery in the "San Carlos" Clinical Hospital of Madrid. And secondly, to know the opinion of the patients using this telemedicine system.

Material and methods: The videoconference system used is formed by two terminals connected through the LAN of the hospital by means of A kit Intel® Proshare® Video System 500. The Terminal for the Patient has a camera with optical zoom lens, auto-focus and remote control from the Doctor's Terminal. 104 patients have been included in this study (73% men) with an average age of 51 years (22–80 years) corresponding to the following processes: hernias of the abdominal wall, 63.5%; superficial lipomas, 21.15%; pilonidal sinus, 10.6% and hidrosadenitis, 4.8%. Results received from the teleconsultation are matched to those obtained at the in person consultation. In order to know the opinion of the patients about this telemedicine system, a survey with 10 questions was elaborated: 9 were the closed type and one open question. Of the 9 closed questions, 7 are purely yes/no and 2 offer 4 answer options that are mutually excluding.

Key words: High resolution consultation, Telemedicine, Videoconference, Primary care, Ambulatory surgery.

Results: The data collected in the teleconsultations matched those of the in-person consultations, regarding the different pathologies included in the study, as follows: Inguinal hernia, positive in 98% of the cases; umbilical hernia, epigastric and post-operative incisional hernias, positive in 100% of the cases. Superficial lipoma, positive in 95.5% of the cases; Pilonidal Sinus and Hidrosadenitis, positive in 100% of the cases. The quality of teleconsultation was considered "good" or "very good" by 100% of the patients. 94.1% of the patients felt "quite comfortable" or "very comfortable" during the teleconsultation. 100% of the patients considered that the communication with the doctor in the teleconsultation was "fluid and effective". 97.1% felt safe during teleconsultation and 95.1% did not miss the physical presence of the doctor during teleconsultation. 100% considered using this form of teleconsultation "very useful".

Conclusions: The results confirm that the requirements necessary to be able to use the videoconference as the base of a telemedicine system are fulfilled and that this would allow us to optimize the High Resolution Consultation of the Ambulatory Surgical Unit, eliminating the displacements of the patients.

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Original 1 Quality control in ambulatory and outpatient surgery

Abstract

Introduction: One of the means used to achieve a better progressive assistance in the Ambulatory Surgical Unit (ASU) is, first of all, to measure and to evaluate the results, comparing them with those of other units, and, then, to apply improvements. Publications mention some changing and some unchanging indicators, and the complexity of the procedures is not always mentioned.

Outpatient Surgery (OS) is an increasing alternative to Ambulatory Surgery for certain procedures, and its quality indicators have not yet been established.

Material and methods: We present our case history of the last 13 years in the ASU and of 7.5 years in the OS. The ASU quality indicators being used were: the replacement index, admissions (immediate and deferred), cancellations, visits to the emergency room and phone calls, and we compared them with other case histories. In OS, we have valued the unsuccessful cases. We handed out a satisfaction questionnaire and two psychiatric scales to evaluate the anxiety state of 117 patients.

Key words: Ambulatory surgery, Outpatient surgery, Quality control.

Results: We attended 1,467 patients in the ASU. The admissions represented a 3%; readmissions, 0.34%; cancellations, 0.75%; phone calls, 10.4%, and general substitution index, 25%. Amongst the 1,346 patients attended in OS, the unsuccessful cases varied from 2.5% to 22%, depending on the procedures. The average of satisfaction in the ASU was 9.4/10, and in OS was 8.9/10.

Conclusions: The development of our quality control index is favorable, although some aspects may be improved. Some of the indexes being used should be unified in order to make the comparative study amongst Units easier. The replacement index should refer to procedures susceptible to being carried out in the ASU. It would be advisable to notify which surgical procedures were performed in the ASU and are now performed in OS.

Original 2 Investigation in the ambulatory surgical unit

Abstract

Background: The Ambulatory Surgical Unit has an essentially therapeutic approach, although it is possible, within this organizational model, to develop investigation procedures. The purpose of this study is to analyze the use of the ambulatory surgical unit for the development of clinical studies, so we undertook a descriptive study of the papers sent to the most recent congresses on ambulatory surgery.

Methods: A descriptive study of the papers sent to the national and international meetings of 2007-2008, including oral communications and posters describing a prospective or retrospective study.

Key words: Investigation, Ambulatory Surgery, Review.

Results: We checked the communications sent to the IAAS 7th *International Congress of Ambulatory Surgery*, VII *Congreso Nacional de Cirugía Mayor Ambulatoria* and VII *Simposio de la Asociación Española de Cirugía Mayor Ambulatoria*. We reviewed 503 communications, of which 51 were prospective studies (10.12%) and 57 retrospective studies (11.33%).

Conclusions: Although investigation studies are perfectly compatible with certain organizational models of care such as the ambulatory surgical unit, there is a marked under-utilization of this type of health organization in connection with investigation activities..

Original 3 Peritoneal dialysis catheter implants: our short term and long term experience

Abstract

Introduction: Our short and long term experience in the implantation of peritoneal catheters is exposed in this study and whether the aims established for Ambulatory Surgery are fulfilled.

Material and methods: An eight year retrospective study. Two groups: catheters type Tenckhoff with two cuffs and catheters type Tenckhoff with two cuffs and a ballast on the end. Surgical peculiarity: the introduction of the catheter in an antibiotic solution. The complications were divided in short and long term depending on when they appeared during the first week of implantation or not.

Results: The most frequent reason for chronic renal insufficiency was: diabetes mellitus (9.8%). In 33.1% of cases (41 catheters) there

were no complications, and only pain on the short-term (8.9%) and peritonitis on the long-term (8.1%). 78.43% of the initially implanted catheters did not need to be replaced.

Conclusions: The placement of the peritoneal catheter must be done in the operating room.

Peritoneal dialysis is a sure, effective and simple technique for the surgeon and for the patient. It presents few complications, mainly pain and peritonitis. The catheter is replaced when it works badly or leaks. There are no studies in the literature that reflect the introduction of the catheter in an antibiotic solution before its placement. It can be implanted as an AS procedure.

Key words: Peritoneal dialysis, Catheter. Tenckhoff, Ambulatory surgery, Ambulatory surgical procedure.