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Concerns of an Itinerant Surgeon: Results of a Guatemalan Surgical Aid Trip

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ABSTRACT

Over the past decade the popularity of foreign medical aid has increased and gained notoriety. Operation Walk is a philanthropic organization dedicated to improving the ambulatory potential of patients in developing countries by providing free surgical treatment for patients who otherwise lack access to care of debilitating bone and joint conditions. During Operation Walk Mooresville's 2013 trip to Guatemala 40 patients prospectively completed a Likert Scale style survey. The 63-question survey assessed patient impressions and concerns regarding the care they receive as part of itinerant surgical aid trips. Mean scores were calculated and then concerns were ranked accordingly. We are aware of no other investigation assessing these sorts of patient centered perspectives for international surgical aid trips.

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Over the past few decades the efforts of physician leaders have increased interest in providing medical care to patients in the developing world [1–4]. In this setting surgical pathology is quickly being recognized by the WHO and other organizations as a substantial problem in global health [5–7]. The percentage of total surgical treatment is estimated to be between 3.5% and 15% in developing nations [2,8]. Pertinent to the orthopaedic surgeon data suggest that orthopaedic conditions comprise a large component of the surgical pathology present throughout the developing world [9]. Despite these data initial global health efforts were focused on medical services such that surgery was deemed as the, "neglected stepchild of global health" [1].

The earliest international surgical efforts undertaken were largely the preserve of general and obstetrical/gynecological surgeons [10–12]. Now there is a call for orthopaedic surgeons to assist in the global surgical crisis, with an acknowledgement that there is a huge musculoskeletal disease burden present throughout the developing world [13–15]. For example, if the United States possessed the same population to orthopaedic surgeon ratio as Malawi a mere 30 orthopaedic surgeons would serve a population of around 300 million [16].

This chasm of care prompted the creation of orthopaedic aid organizations beginning with Orthopaedics Overseas in 1981 [16]. In the following decades a number of other orthopaedic aid groups came into existence. The authors of this paper are integrally involved in the non-profit called Operation Walk, Mooresville. Operation Walk is a philanthropic organization dedicated to improving the ambulatory potential of patients in developing countries. Dr. Lawrence Dorr founded Operation Walk in 1995. That year he went to Russia with an anesthesiologist and an internist to teach and operate. On that trip the idea for Operation Walk came to him. Dr. Dorr subsequently organized the first surgical aid trip with a focus on treating arthritis and his team went to Cuba in 1997. Dr. Merrill Ritter was on the first Cuba trip and he organized a similar group from Mooresville, IN. Three years later the group from Mooresville joined Dr. Dorr on another trip to Cuba. After that there were two separate teams of Operation Walk operating throughout Central America. By providing free surgical treatment for patients, who otherwise lack access to the care of debilitating bone and joint conditions, Operation Walk seeks to ameliorate the ambulatory disease burden in nations with a paucity of resources. Operation Walk is currently comprised of 11 separate teams serving patients throughout Latin America, with one team trekking as far as Nepal to operate. The authors of this paper travel with Operation Walk Mooresville, visiting Nicaragua and Guatemala in even and odd years respectively, with a remote history of trips to Cuba.

Our division of Operation Walk is focused on treating arthritis of the hip and knee, as well as a myriad of foot and ankle conditions. The

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majority of our caseload is comprised of total hip and knee arthroplasties. In response to the call throughout the literature for further investigations concerning orthopaedics in the developing world supplemented by the demonstrable need for treatment of arthritis we sought to elucidate the preoperative concerns of our patients [13,17].

Methods

In February of 2013 one division of Operation Walk sent a team to Guatemala City, Guatemala in order to provide care for 69 patients who underwent total hip arthroplasty, total knee arthroplasty, or foot and ankle surgery. Our Mooresville team provided every facet of care, including all surgical equipment and implants, with the host country providing only the patients and hospital facilities. In this prospective study 41 of those 69 patients were asked to complete a survey outlining their concerns before undergoing the procedures. Patients were Guatemalan citizens who had previously been screened by a local orthopaedic surgeon. Those patients were then evaluated further before being placed on the Operation Walk schedule. Patients often travel six or more hours to the capital seeking the services provided by Operation Walk. While the patient population is largely comprise of people from the capitol city and the surrounding area there is a contingent of patients representing the rural areas of Guatemala.

After the routine preoperative screenings, the evening before the patient's case, each patient was asked to complete a 63-item questionnaire. The following morning each patient was assigned to one of five operative rooms based on the procedure they would undergo (knee arthroplasty, hip arthroplasty, or foot and ankle surgery). In each operating room there was a team comprised of two seasoned attending orthopaedic surgeons as well as an anesthesiologist, circulating nurse, scrub nurse, a wandering implant representative, and a cadre of surgical assistants. Patients were not aware of who their surgeon or surgical team would be prior to the operation.

Demographic information was collected and included: patient age, sex, prior surgery, previous complications, and whether or not they were in good health. Patients responded to the Likert scale survey (translated into Spanish) using a visual analog scale. Forty-one of the 56 questions were borrowed from one of the author's previous investigations on patient concerns before undergoing total joint arthroplasty [18]. The 15 remaining questions were novel assessments of the potential concerns patients may have about being treated as part of an itinerant surgical aid mission comprised of a team from abroad. Scores were recorded as: 1, not concerned at all; 2, somewhat concerned; 3, very concerned; or 4, extremely concerned [19]. Patient concern was then ranked by mean score responses for each question. All the responses were further examined for associations with sex, type of surgery, prior surgery, whether the patient understood the risks of the procedure, and if the patients considered themselves to be healthy.

Statistical analysis was completed using SPSS software. Assessment of associations with sex, previous operation, discussion of surgery, and type of procedure (either Hip or Knee because there were not enough Foot and Ankle respondents to be significant) was done using Chi-Square analysis or a Fisher Exact test where appropriate. The 56-question Likert style survey, measuring patient concern before surgery, was on the aforementioned scale of 1 (not concerned at all) to 4 (extremely concerned). The mean score of each question was calculated. These mean scores were then ranked to look for patterns.

Results

Out of 69 total patients 41 were asked to complete the survey. The 28 patients whose responses were not captured by this investigation were not asked to complete the survey. The reason they were excluded was logistical, they were not available to be given the survey preoperatively, usually because they were add-on cases. Of those 41 patients asked to complete the survey 40 did so correctly and completely. One patient only responded "sí" (yes) or "no" (no) to the questions, as opposed to utilizing the visual analogue score, therefore that survey was not included in the results.

For the 40 completed surveys the mean age of respondents was 54 years (range, 12–78 years). Of those patients undergoing total knee arthroplasty average age was 63 (range, 34–78 years), while average age for total hip patients was 48 (range, 25–74 years), and foot and ankle patients had an average age of 48 (range, 12–68). Twenty-seven out of 40 of respondents were women, while the other 13 were men. Eighteen patients underwent total hip arthroplasty, 18 total knee arthroplasty, and 4 patients had a foot and ankle procedure. Of the hip arthroplasty patients, eight had bilateral surgery and 10 unilateral operations. Of knee arthroplasty patients, 13 underwent bilateral procedures while five had unilateral operations. Thirty out of the forty patients reported having previously undergone surgery and of those six out of 30 reported having a complication from a previous surgery. Twenty-three out of 40 patients stated that they discussed the risks and benefits of the procedure before the operation. Only one patient out of the 40 reported being unhealthy.

The mean level of concern for any question ranged from 1.125 (for concern that care is as good as one would otherwise receive in Guatemala) to 2.45 (for concern about being able to pay for medications and other expenses after the procedure). This was on a scale of 1–4, where not concerned at all = 1 and extremely concerned = 4. Ten questions recorded an average response greater than 2.0; these were: ability to pay (2.45), contracting AIDS from a transfusion (2.275), falling postoperatively (2.275), damage to nerves (2.125), risk of losing a limb (2.1), being able to personally care for oneself (2.1), needing a cane or crutches (2.05), contracting an infection (2.025), getting in and out of the bathtub (2.0), and being able to do one's usual work (2.0). Six additional questions had an average score greater than 1.9 and therefore merit mention, these include: dislocation (1.975), ability to climb stairs (1.975), implant wear (1.975), contracting hepatitis from a transfusion (1.95), inability to walk as far as one desires (1.95), and postoperative joint stiffness (1.9). Only five questions averaged response scores less than 1.3, these represent the items of least concern to our patient population and they were: concern with not receiving American standards of care (1.275), that the surgeons were not trained or certified in Guatemala (1.225), not having the ability to choose the implant (1.175), being treated differently than patients in a physicians native practice (1.175), being treated as part of a surgical aid trip or mission (1.15), and receiving care as good as that provided in Guatemala (1.25) (Table 1).

None of the itinerant specific concerns received an average score greater than 1.8. Only two of these questions registered averages greater than 1.5, which were for concern about not ever seeing their surgeon after they leave (1.775) and for concern about receiving adequate care after the team leaves if a complication arises (1.675). The lowest averages for this group of questions were also the six lowest scores for all questions asked. These questions were in regards to concern over: receiving care equivalent to that in the United States (1.275), the surgeons not having been trained or certified in their country (1.225), not being able to choose the implant used (1.175), being treated differently than patients from the surgeon's home practice (1.175), being treated as part of a surgical mission trip (1.15), and receiving care equivalent to that otherwise provided in Guatemala (1.125) (Table 2).

Men were significantly more concerned than women in nine of the 56 questions. These questions were concern about: joint stiffness ($P = 0.002$), contracting hepatitis from a transfusion ($P = 0.033$), being treated as part of a mission trip ($P = 0.002$), receiving a transfusion ($P = 0.034$), complications from anesthesia ($P = 0.034$), not knowing what to expect ($P = 0.001$), the cleanliness of facilities

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