Pediatric Experience in La Plata, Argentina

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La Plata is a city within the Province of Buenos Aires in Argentina. It has a population of about 500,000. La Plata is approximately 65 kilometers from the city of Buenos Aires in the northeastern part of the country and it is 220 kilometers from the Atlantic coast. Argentina is a country rich in natural resources such as cattle, wheat, and corn. It was colonized initially by the Spanish because of its silver supply which is how it got its name. I first became interested in visiting the country in 1987 when I met Dr. Gustavo Rinaldi. He was involved in physiology research at the University of Michigan when I was an undergraduate student there. I worked with him on a hypertension study for two years. He spoke very fondly of his country and enjoyed describing its natural beauty and its folklore. Thus, when I learned about the International Health Program at CWRU School of Medicine, I immediately thought of spending time in Argentina. I also saw this elective as an opportunity to improve my ability to speak, read and understand Spanish; these skills will be invaluable to me as a future Emergency physician. Luckily my desire to visit La Plata through the International Health Program was easily made a reality because of Dr. Rinaldi's kindness in providing me with housing. He was also able to make all the necessary arrangements through his capacity as Assistant Secretary of Student Affairs at the medical school of La Universidad de La Plata.

My first view of Argentina was from my airplane window. I was immediately struck by the plush greenery. It was very hot upon my arrival but I welcomed the change from snow and sub-zero temperatures in Cleveland. The town of La Plata is filled with wonderful architecture. I felt like I was touching a part of history when I passed the impressive structures of the Cathedral of La Plata and the Plaza de San Martín. The people are also beautiful. At first it was difficult to believe that I was truly in Argentina until I passed a market or a cafe where I heard the people speaking rapidly in what I knew was Spanish but what sounded like "Martian" because it was so different to me. I was immediately enveloped by the warmth of the people there, especially when everyone greeted me with a kiss rather than a handshake. In any store or restaurant I entered, I was quickly

recognized as a foreigner, especially for my "Spanglish", but all welcomed me and inquired excitedly about if I liked their country. Some even invited me to return to their businesses to meet their families. By my second day in La Plata I felt like a "Platense".

On my first official work day, Dr. Rinaldi introduced me to Dra. Silvia Gonzalez Ayala who was extraordinarily willing to open so many other doors for me in La Plata. I really cannot thank her enough for many things, but first of all, for introducing me to the Division of Infectologia at el Hospital de Niños de La Plata. This pediatric hospital is a huge public facility which serves not only the population of La Plata but also several surrounding areas. It is not unusual for patients and their parents to travel 2-3 days (over several hundred kilometers) just to receive care at el Hospital de Niños. It has a well-known reputation throughout the country for the quality of its specialty clinics and it provides free care in all pediatric subspecialities. The hospital was founded many years ago by a nun, Sor. Superior Maria Ludovica, who dedicated her life to the care of sick children. The structure itself is old but very clean and its entrance is always blocked by a never-ending line of patients and families awaiting clinic appointments, admission to one of the salas (wards), and a host of other social services. The doctors here appear very relaxed. No one carries beepers and many wear jeans or shorts. This appearance, however, is very deceiving as the volume of patients and the spectrum of pathologies handled here are enormous and these doctors work very hard. The attendings are considered to be among the country's leading experts in their given field of pediatrics. They all work in the hectic and often frustrating environment of this institution because they want to provide excellent health care to those who can not pay for it. The residents are all very capable and receive good training which includes exposure to alot of pathology and access to superior teachers.

The division of infectious disease at el Hospital de Niños includes an inpatient unit (Sala 6) containing approximately 14 beds, as well as a daily clinic and a large consultation service. I spent most mornings in the clinic with Dra. Ayala. First she

would review and rewrite all drug orders for the inpatients. Then she saw each patient who arrived at the clinic which was, on average, 20-30. Many of these patients came for follow-up of previous meningitis and hepatitis infections. Several came regularly because they had a positive HIV reactivity test. Dra. Ayala follows these patients closely for any signs of infection. She also has many patients with unusual and interesting diseases including "exanthem de mariposas", Lyell's disease, and cholera. The clinic is a place in perpetual motion but Dra. Ayala runs it tirelessly. Between patients she is constantly answering the phone about consultations, questions from the ward, lab results etc. I find it difficult some days to keep up with her but she seems to thrive on the volume of work, which she handles single-handedly without a beeper, computer, or a secretary! She approaches each patient as if it were a new case even if it is the sixth case of sore throat or sinusitis she has seen in the same morning. It is amazing to watch her quickly diagnose and develop a plan for each sick child by looking at them and touching them. She truly cares about the children and gets angry at parents who fail to follow her instructions and then return to clinic with children who have a recurrent illness or one that progressed as a result of their neglect.

As mentioned before, participating in the pediatric infectious disease clinic gave me a tremendous opportunity to see diseases which are quite unusual in the U.S. but very common in South America. For example, I saw several cases of a skin disease caused by Mariposa Negra (scientific name "La Hylesia Nigricans") which is a type of butterfly that grows in La Plata especially during the summer months (January and February). It also grows in Mesopotamia, Brazil, Uruguay, Peru and Venezuela. The butterflies measure about 4-5 centimeters in length and carry a poison in their abdomen which is deposited superficially when they land on or bump into human skin. They are especially prone to getting caught in clothed areas so that the resulting skin reaction is often seen in the distribution of skin covered by a swimsuit or a t-shirt.

One of the primary investigators of Mariposas in the city is Alejandro Schamun who happens to be a former student of Dra. Ayala and who has just completed his final year of medical school. I had the opportunity to visit the Museo de Ciencias Naturales de La Plata, which is one of the largest natural history museums in the world. While at the museum I met with Alejandro and Prof. De Santis, an agronomic engineer and one of the world's leading experts on the subject of Mariposas. I learned that the mariposas fly with their abdomens forward in search of artificial light. Their flight is clumsy and they easily collide with humans, depositing their toxin on the skin which produces a primary localized reaction that can eventually involve the entire body. This illness is called "mal de Caripito". The name comes from the first incidences of the disease which was documented in the passengers of an Italian ship moored in the port of Caripito, Venezuela around the turn of the century. At least 200 cases of the infection were seen in La Plata this summer. The exanthem produced by the poison is self-limited lasting 5-6 days. Besides its appearance on skin, other features include: erythematous patches on palmar surfaces, fever, vomiting, and red vesicles on oral and pharyngeal mucosa. The only treatment is symptomatic. In the clinic we usually gave one Benadryl injection to help control the itching.

Lyell Syndrome, also known as "Necrolisis Epidermica Toxica", is another disease which seems to have an increased incidence in Argentina compared to other parts of the world. This syndrome begins with a rash followed by an intense and extensive depigmentation process along with large flaccid ampollas that often become confluent and break giving the appearance of skin that has been scalded by hot water. The features of the syndrome include mucosal compromise, and corneal involvment. Unfortunately, one of the patients followed regularly in the infectious disease clinic, 7 year-old Matias, is a victim of these complications and the result is blindness with recurrent infections. The etiology of the disease is unknown but thought to be linked to infections, especially with mycoplasma, drugs-like trimethoprim-sulfate, collagen disease and neoplasm. Treatment for the syndrome

is controversial and not very effective. The usual regimen includes antibiotics (if necessary), antihistamines, and a course of steroids.

Another unusual skin infection which was sometimes seen in the clinic was "Eritema Multiforme". This disease, like Lyell, has no definitive diagnostic marker and affects both skin and mucosal surfaces. Its etiology may also be linked to infections, drugs, and neoplasms.

Cholera is a very important "new" infectious disease in Argentina. Currently there is an outbreak reaching epidemic proportions in Bolivia which is to the north of Argentina. In this country there is a lack of general water sanitation and the Vibrio cholerae bacteria is spread easily. The problem is that many Bolivians migrate from endemic areas to the province of Buenos Aires in order to find work. The population of cities, like La Plata where good free hospitals are available, is immediately put at risk. The cases of cholera which have been reported in La Plata this year were all of Bolivian migrants although a few cases were secondary to contact with these travelers. The Ministerio de Salud (Ministry of Health) has launched a media campaign to educate people in the province in an effort to prevent any further spread of the disease in this area. The Ministerio de Salud y Accion Social has designed a guide for educators to use in the schools as part of the prevention campaign. There are numerous tv and radio commercials reminding people to boil water where running water is not available and to wash hands frequently especially when handling food. The primary mode of spread of the true Vibrio cholerae which causes acute diarrhea is through contaminated water (especially that exposed to feces and vomit), ingestion and dirty hands. The incubation period for this infection is from several hours up to 5 days. Clinical manifestations include acute diarrhea, vomiting, rapid dehydration, shock, cramps and oliguria with the absence of abdominal pain or fever.

Dra. Ayala informed the pediatric staff at a recent conference about an interesting new development which is confounding the diagnosis of true cholerae. Vibrio 0139 is a novel strain of V. cholerae. It is among those choleras which,

unlike true cholera, lack an O1 antigen in their cell walls. Up until recently, these types of cholerae have been considered incapable of causing acute diarrhea or of having epidemic/pandemic potential. The clinical characteristics of O139 differ from O1 V. cholerae primarily by the fact that 40% of cases experience abdominal pain. In terms of all other clinical characteristics including dehydrating diarrhea, leukocytosis, absence of fever, serum and stool electrolyte levels, this novel strain is identical to the O1 Vibrio cholera.

In addition to pediatric infectious disease, I had the opportunity to rotate through many of the other pediatric subspecialties at Hospital de Los Niños. For example, I spent some time in endocrinology clinic with Dra. Viviana Balbi. The majority of her patients are diabetic or have cryptorchidism. The treatment of cryptorchidism here is very different compared to the standards used in the U.S. Rather than being regarded as a primarily surgical problem, the disease is classified first as an endocrinological one in this country. This is because the first mode of treatment is a 3 cycle course of i.m. human chorionic gonadotropin (HCG). The regimen begins with 1 cycle of 1000u of HCG one time per week for 5 weeks. The patient is monitored at regular endocrinology clinic visits for any testicular change or other side-effects from the HCG. If this therapy fails, then the patient is referred to surgery. The incidence rate of cryptorchidism in this country is approximately 63% unilateral and 10% bilateral. All treatment (endocrinologic or surgical) is delayed until boys are 3-4 years old. Surprisingly, inspite of this delay in treatment, Dra. Balbi informs me that there is no reported increase in the percentage of testicular cancer cases in this country. She is not sure about the difference in efficacy between HCG alone and HCG followed by surgery but she does feel that the HCG improves the outcome of the surgery.

I also spent time with Dra. Monica Bontempi, who is one of the immunologists on staff, because she was working closely with the infectious disease team on a particularly interesting patient. Luis Sandoval was last admitted to Sala 6 a few months ago. Luis is a 7 year old boy who suffered from omphalitis at birth. He was

admitted at Hospital de Niños at age 2 years for a necrotic skin disease of unknown etiology. His disease is such that any area of skin that is touched for more than a few seconds (i.e. by human hands, EKG leads) quickly breaks down and becomes necrotic. His scalp is completely destroyed by the disease and during this admission he is being followed by the plastic surgery team (in addition to infectious disease and immunology) because they made a skin graft from his thigh to his scalp. He has had frequent admissions lasting for several months due to his disease since the age of 2. His father is an unemployed bricklayer and his mother has some degree of mental retardation. Luis is their only child after several miscarriages. The hospital staff knows Luis and his family very well. He is a brave little boy inspite of the pain he endures daily. He even smiled and waved at me the first time I was introduced to him by one of the plastic surgeons just moments after a grueling skin-debridement session. His disease has puzzled his physicians for years but Dra. Bontempi feels that she is close to finding the key to his diagnosis. She is investigating "Leukocyte Adherence Deficiency" (LAD) which is an immunodeficiency disease characterized by functional impairment in the mobility, chemotaxis, adherence and endocytosis of leukocytes secondary to a defect in the CD18 complex of adherence glycoproteins on their surfaces. There are only 20-30 documented cases of LAD in the world. The clinical picture of the disease usually begins during the first months of life with omphalitis, delayed separation of the umbilical cord and vesicular skin eruptions. In addition, the patient has neutrophilia throughout his life which can lead to other complications like bowel infarction. Recurrent infections with staph aureus, pseudomonas aeruginosa, candida albicans and enterobacter often ensue as the child grows. The characteristic skin lesions are called "pyoderma gangrenosum" and spread rapidly leading to necrosis as in Luis' case.

There are two phenotypes of the disease leading to two possible natural histories. One is the "moderate phenotype" wherein the patient has numerous skin infections and periodontal disease but will never develop sepsis or deep infection

because of the presence of some (5-10% of normal levels) functioning CD18 on the surface of some of their leukocytes. In the "severe phenotype" their is a total absence of functioning CD18, therefore, these patients will eventually develop sepsis and die during the first year of life.

The only possible treatment for this disease is bone marrow transplant but the success of this modality is speculative and may depend on the phenotype. This is where Dra. Bontempi runs into a roadblock to the definitive diagnosis of Luis. The hospital does not have enough money to obtain the expensive immunoglobulins required to test Luis' phenotype. She reveals that this is frustrating because without this test result she is not justified in starting the expensive process of searching for a compatible bone marrow donor for Luis.

The pediatric nephrology service at el Hospital de Niños is the most important subspecialty in the hospital and impressive for its volume of work. It has a large sala, a hemodialysis unit, consultation service and outpatient clinic. Currently there are 3 fellows on the service. Dr. Spizzirri, the director of the department, is very knowledgeable and spends alot of time during the rounds teaching the fellows. I was very honored that he conducted the rounds in English when I visited with the team one morning. I watched a renal biopsy and saw patients with one of the fellows in clinic. It was interesting to learn that so much of the information on hemolytic uremic syndrome was developed in this country and that Hospital de Niños treats >750 children with the disease per year. Hemolytic uremic syndrome is a type of renal disease associated with microangiopathic hemolytic anemia. It is a syndrome that causes acute renal failure associated with flu-like prodrome, melena, oliguria, hematuria and neurologic signs. The etiology is thought to be due in most cases to E. Coli infection.

Dra. Patricia Climent is the head of the neonatology department at Hospital de Niños. The department is a very busy one with two salas containing 25 beds each; both are constantly full. These patients consist of low birth weight infants, premature babies, and those born with birth-defects. Very few are here because of

abandonment or neglect. Dra. Climent informs me that because Hospital de Niños is the only pediatric referral center for a province of 12 million people, there are often parents and families who travel from several hundred kilometers away to bring their new borns here when there is a problem. She showed me a tiny waiting room packed with many people, their bags and luggage. These people sleep in this room on the floor at night because they do not have money to go any where else.

Dra. Climent feels that the primary problem she faces right now in the practice of neonatology is the increasing number of teen-age pregnancies which increases the number of low-birth weight, premature, and infected newborns. She is noticing a resurgence in the number of newborns with congenital syphilis after several years of seeing few or no cases. One plan of attack against the problem of teen-age mothers is that the sala has special rooms where teen-age mothers have parenting classes with doctors and nurses. In this room they are supervised while they learn to feed their children and manage their medical problems. Dra. Climent also runs a very busy neonatology outpatient clinic. Here she follows cases of congenital malformations and children who had other problems such as low weight at birth. Most of these patients, as stated earlier, must travel very far to be seen in this clinic. In order to combat this problem, she spends a good deal of clinic time teaching parents how to manage their childrens' medical problems and how to identify those problems which require them to return to the hospital. For instance, she taught one mother, whose infant has a meningomyelocele, how to sterilely catheterize her infant and how to dip the urine to see if it is infected when her baby has a fever. She has been given a supply of antibiotics which she then administers if she finds this problem. It is amazing to watch how efficiently Dra. Climent runs the department single-handedly without a secretary or even a reliable computer system.

Dr. Sergio Gomez and the rest of the hematology team at Hospital de Niños de La Plata see a wide variety of hematologic diseases including hemophiliac patients infected with HIV, patients with acute leukemia, Hodgkins disease and other

lymphomas. One of the limitations of their practice of pediatric hematology is that currently there are not facilities available in La Plata for bone marrow transplants for patients who are unable to pay for the procedure. It should be noted, however, that Hospital de Niños is currently building a transplant center which should open by the end of the year. Now the hematologists must write to Buenos Aires and await official approval from a transplant center there. Once this is achieved, the patient is transferred to Buenos Aires.

The hematology ward is different from any other sala in Hospital de Niños. It is completely modern and each room is private with a television and bathroom. Dr. Gomez states that this ward is so nice because the parents of children with hematologic diseases organized a few years ago in order to raise money to remodel the ward. The hospital itself did not have the funds for this undertaking so the parents petitioned major businesses in the country, held fund-raising events, and even did some of the construction work themselves. The outcome is beautiful. This is a totally self-sufficient sala with its own lab, blood bank, outpatient clinic and a team of teachers and therapists for the patients.

I became very close to the plastic surgery team during my weeks at the hospital. They are a smart, funny group of people who made me feel very comfortable working with them. I went to inpatient rounds with them one morning each week. Most of their patients are burn victims. I also attended their weekly clinics where we saw everything from burn follow-ups to cleft palates and other birth defects. While I learned alot during these activities I appreciated our morning coffee breaks together most because this is where I had the chance to speak candidly with them about the health care system in Argentina. These discussions were remarkably revealing considering the fact that only one member of the team, Dra. Adriana Rodriguez spoke any English. The others conveyed their feelings and ideas with "sign language" , drawings and "Spanglish". We spoke of many issues including medical education, and the differences in surgical techniques between the US and Argentina. Their views varied alot when we spoke about these

topics but they were unified when I asked them the question of what they perceived to be the largest limitation on their ability to practice medicine. They all felt that they lacked access to technology. Dra. Rodriguez summarized this feeling best when she stated: "..we know of many things which we will never see..." She was referring to things like mechanical ventilators and laser equipment which she reads about in American surgical texts but which are not yet available in La Plata.

In addition to the great experiences I had at Hospital de Los Niños, Dra. Ayala graciously arranged an opportunity for me to visit Hospital de Noel Sbarra. This institution primarily deals with children who are victims of abuse or neglect and with those who have psychological problems. It is the only institution of its kind in the Province of Buenos Aires so it is a major referral center. The hospital building itself is an impressive structure housing large nurseries and salas (wards) for small children. There is a big playground which includes a swimming pool. But even more impressive than the structure itself, are the people operating this institution which depends almost completely on donations and volunteers. For instance, the children are fed, bathed, played with and loved entirely by volunteers who donate a regular period of several hours per week simply because they love to help children. I was also amazed by a huge area in the hospital which housed fabric and sewing machines which are donated so that volunteers can sew sheets and clothing for the children. The efficiency of the organization is an incredible accomplishment and a testament to the value placed here on the welfare of children.

I was impressed by everything I saw during my days in the hospitals of La Plata. I learned some things about Pediatrics and I learned some Spanish. I met many wonderful, dedicated physicians who work with all resources at their disposal, in spite of many limitations, to bring the best possible care to their patients. Even though our languages and our cultures are very different I realized that a smile, a touch, and making a patient feel better are all the same in any language.

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