

High-resolution consultation for hypertension. A one-year experience

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SUMMARY

By High Resolution Consultation (HRC) we mean an ambulatory process of assistance fulfilled in a single day, by which treatment and diagnosis are established after all complementary tests have been carried out. Once diagnosed, the patient is discharged and resented to the doctor who had previously remitted him/ her. In the Cáceres sanitary area, with distances longer than 100-120 km and precarious local road communications, the introduction of hypertension (HTA) HRC has brought along important savings of sanitary and economical resources and it is perceived by the user as highly satisfactory. We have carried out an observational one-year study of our HCR-HTA, in which 90 patients have been evaluated, out of which 74.4% came from primary assistance and 25.6% from specialized assistance. Once diagnosed, 61 patients were discharged and sent to receive primary assistance and 29 were kept in our outpatient nephrology consultation, justified by severe and/ or rebellious HTA in 11 cases and by renal failure in 16 cases; two of these patients are still being tested. Taking into account that in a traditional consultation a patient would need two or three visits and one or two days for complementary tests, our HTA-HRC (by which patients are tested and diagnosed in a single day), brings along savings of one or two consultations and two to four relocations for new consultations and diagnostic explorations. In one year of HTA-HRC with 90 patients, we have saved from 212 to 302 consultations and from 302 to 604 relocations in comparison to the traditional organization and we have thus generated from 100 to 150 places for first appointments.

Key words: Living donor renal transplant. Survival. Outcomes comparison. Registries.

RESUMEN

Se entiende como consulta de alta resolución (CAR) el proceso asistencial ambulatorio realizado en una sola jornada, en el que se establece el diagnóstico y tratamiento, después de realizar la pruebas complementarias. Una vez valorado el paciente es dado de alta y enviado nuevamente al médico que lo remitió. En el área sanitaria de Cáceres, con distancias superiores a los 100-120 km y una red viaria comarcal precaria la implantación de la CAR-HTA ha supuesto un importante ahorro de recursos sanitarios y económicos y es percibida por el usuario cómo altamente satisfactoria. Hemos realizado un estudio observacional de un año de nuestra CAR de HTA, en la que han sido valorados 90 pacientes, de los cuales el 74,4% procedían de atención primaria y el 25,6% de especializada. Una vez valorados 61 pacientes fueron dados de alta y derivados a atención primaria y 29 pacientes permanecieron en la consulta de Nefrología, justificado por HTA severa y/o rebelde en 11 casos y por afectación renal en otros 16 casos, dos están pendientes de pruebas. En relación con una consulta clásica en la que los pacientes necesitan 2 ó 3 consultas y 1 ó 2 días más para pruebas complementarias la CAR de HTA, en la que los pacientes son vistos en un solo día, supone un ahorro de 1 ó 2 consultas y 2 ó 4 desplazamientos para consultas y pruebas. En un año de CAR-HTA con 90 pacientes vistos, de los cuales 61 fueron dados de alta ha habido un ahorro de 212 ó 302 consultas y 302 ó 604 desplazamientos en comparación con la consulta clásica y la generación de 100-150 «huecos» para primeras visitas.

Palabras clave: Trasplante renal de donante vivo. Supervivencia. Comparación de resultados. Registro.

INTRODUCTION

A high-resolution consultation (HRC) or single consultation (SC) is considered as the outpatient health care process by which in just one working day the diagnosis is established with the corresponding treatment after carrying out the necessary ancillary investigations, all of them being reflected on a clinical report.¹ Once the patient has been assessed, he/she is referred back to the physician referring him/her, who generally is the primary care physician, but also other hospital specialists.

With the single consultation (SC) the clinical assessment and the appropriate complementary tests are done in the same working day, so that a diagnosis and the corresponding treat-

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ment are established.² The aim is doing a diagnostic and therapeutic approach in the least amount of time, and in this way the health care quality is improved by decreasing the ratio between follow-up and first consultations.³

By carrying out within the same day the anamnesis, physical examination, complementary tests, and the diagnosis, second or third visits are spared, as well as 2 or 4 commutes per visit.

The health care area of Cáceres comprises a wide geographical region with maximal distances to the hospital of 110-120 km (fig. 1). The Estremaduran Health Care System (EHCS) provides different tools such as telemedicine assistance and high resolution consultations that allow for continuous quality improvement of the health care assistance; the user of a HRC perceives it as satisfactory by decreasing the number of commutes and obtaining the diagnosis and treatment in a single visit.

The main objective of the arterial hypertension high resolution consultation (AHT-HRC) of the Nephrology Department is to study AHT associated to kidney diseases or diabetes, to rule out secondary forms of AHT, to analyze the associated cardiovascular risk factors, and to recommend a treatment; the secondary objective focuses on the diagnosis and treatment of severe-refractory AHT and to performed blood pressure ambulatory monitoring (BPAM).⁴

This observational study has been designed with the objective of assessing the results of the AHT-HRC of the Nephrology Department of the Hospital of San Pedro de Alcántara, in Cáceres, during the period comprised between March 1st of 2005 and March 1st of 2006.

MATERIAL AND METHODS

In the year 2004, the AHT Unit of the Nephrology Department and the Hospital Management Department considered beneficial the creation of a high-resolution clinic or SC to assist the patients derived from primary health care (PHC) or from other hospital departments (specialized health care (SHC)). It was necessary to coordinate with the central services the preferential assistance to these patients, particularly with the Departments of Radiology, Laboratory, and Nuclear Medicine.

The referral forms for first visits in AHT are assessed, together with all other first-visit referral forms, by a nephrologist (AC), who decides the appointment for the consultation and fills-up the orders for the ancillary tests (complete blood count, basic biochemical determinations in blood and 24-h urine, chest X-ray, EKG, renal ultrasound, and glomerular filtration by scintigraphy). The patient is scheduled in less than one month for a first-visit appointment at the AHT clinic with the orders for the ancillary tests and the corresponding instructions to attend the hospital early in the morning, follow the itinerary scheduled, and once the tests have been done to come at noon to the AHT-Nephrology Clinic.

At the HRC, anamnesis, physical examination, and assessment of the tests performed are carried out, reaching a diagnosis and recommending a treatment that the patient receives on a written report. A percentage of patients will need a second visit for a second diagnostic or therapeutic visit, and the remaining ones are referred back to their referring physician.

A one-year observational retrospective study has been carried out. We assessed the reports from the AHT-HRC of all patients assisted between March 1st of 2005 and March 1st of 2006.

The different variables analyzed include: age, gender, reason for consultation, origin (primary health care, emergency department, or specialized health care), cardiovascular risk factors, arterial hypertension severity (WHO degrees), incidence of renal failure (etiology and degree) and fate (primary or specialized health care).

RESULTS

Between March 1st of 2005 and March 1st of 2006 90 patients were seen at the AHT-HRC, 53 (58.8%) men and 37 women. The mean age was 59.4 ± 23.1 years (24-89 years).

Seventy-seven patients (74.4%) came from PHC, whereas 25.6% from SHC; the hospital department referring the highest number of patients was the Emergency Department (11 patients). Twenty-nine (32.2%) were derived because of AHT, without specifying the cause, 20 cases for AHT and increased plasma creatinine, 20 for refractory AHT, 11 for AHT and changes in the urinary sediment, 8 for suspicion of a secondary form of AHT, and finally 2 cases for AHT during the pregnancy (table I).

The cardiovascular risk factors are shown in Table 2. In 30% of the cases there was one risk factor, the most frequent one being dyslipemia (53.3%); 30% had two risk factors, 19 (21.1%) had three, and 11 (12%) more than three; 6 cases (6.7%) had no risk factor. Diabetes mellitus was present in 11 patients, the prevalence of target organ damage and of associated cardiovascular disease being 23.3% and 33.3%, respectively.

Eight patients were referred because of suspicion of secondary AHT (5 with the suspicion of primary hyperaldosteronism, two of vasculo-renal AHT, and one of AHT secondary to pheochromocytoma); three cases of primary hyperaldosteronism and two of AHT secondary to idiopathic bilateral hyperplasia were confirmed, whereas the third one was pending of study completion; in the remaining, primary AHT was concluded, 4 with WHO grade I and the other one with WHO grade III. In the remaining 76 patients (84.4%), essential AHT was diagnosed, being WHO grade I in 34 cases, grade II in 12, and grade III in 31 cases; 2 cases were diagnosed as AHT secondary to parenchymal renal cause; in 4 (4.4%) patients, BP was considered to be within the normal range (in 2 cases after doing BPAM).

Among the patients with AHT, 28 presented renal failure (creatinine clearance < 80 mL/m/1.73 m²), 4 cases stage 2, 22

Table I. Criteria for referral to the AHT-HRC. RF = renal failure

Referral criterion	Num. of cases	Percentage
AHT	29	32.2%
Refractory AHT	20	22.2%
AHT and RF	20	22.2%
AHT and sediment changes	11	12.2%
Secondary AHT	8	8.9%
AHT and pregnancy	2	2.2%



Figure 1. Health care map of the province of Cáceres and its health care area.

Table II. Associated cardiovascular risk factors

Associated risk factors	Num. of cases	Percentage
Dyslipemia	48	53.3%
Obesity	44	48.9%
Advanced age	42	46.7%
Cigarette smoking	17	18.9%
Diabetes mellitus	11	12.2%

stage 3, and 2 stage 4. The cause of renal failure was attributed to nephroangiosclerosis in 20 cases, diabetic nephropathy in 4, glomerular nephropathy in 2, and unknown in 2. One patient presented functional renal failure secondary to treatment with ACE inhibitors and dehydration.

Once seen at the AHT-HRC, 61 patients (67.8%) were discharged from our clinic; 32.2% (29 cases) remained at our clinic due to severe AHT or suspicion of a secondary form in 11 cases, 13 due to renal failure, 3 because they presented progressive nephropathy, and 2 had the results pending for study conclusion. Fifteen renal failure patients were derived to their primary care physician (4 patients with stage 2 renal failure and 11 with stage 3 renal failure (glomerular filtration rate 40-60 mL/m/1.73 m²) with the recommendation of renal function monitoring and new referral to the Nephrology Clinic if needed.

At a high-resolution clinic (HRC), in a single visit and having previously performed the complementary tests in the same working day, a diagnosis is reached and a treatment is recommended to the patient, who is discharged or scheduled for a follow-up visit. At a classical clinic (fig. 1), it is necessary to perform at least 1 or 2 visits, plus the ones correspon-

ding to diagnostic tests, which represents 1 or 2 additional visits and 2 or 4 additional commutes, as compared to AHT-HRC.

In our case, with 61 patients being discharged, this represents a spare of 61 visits and 122 commutes (consultation and tests), had the patient been discharged at the second follow-up visit, and of 122 visits (two visits) and 244 commutes (two for the visits and two for the tests), had the patient needed a second follow-up visit and the corresponding complementary tests.

Twenty-nine (32.2%) patients were followed afterwards at the Outpatient Nephrology Clinic. After having been seen at the SC, these patients have spared 1-2 visits and 3-4 commutes, which represents 29-58 less visits and 58-116 less commutes.

Since they were no longer followed at the specialized clinic, the 61 patients discharged have spared the regular follow-up visits every 6 months, that is to say 122 visits and 244 commutes less annually.

In total, 212 visits (had the patient been discharged at the second follow-up visit) or 302 visits (if discharged at the 3^d visit), and 302 commutes (if discharged at the second visit) or 604 commutes (if discharged at the 3^d visit) were spared.

Taking into account that the ratio of follow-up visits/first visits should be 2:1, by sparing 212 or 302 follow-up visits we generate 106 or 151 «spots», respectively, for potential first visits.

DISCUSSION

During one year of AHT-HRC, 90 patients have been seen, of whom 61 (67.8%) were discharged at the first and single visit.

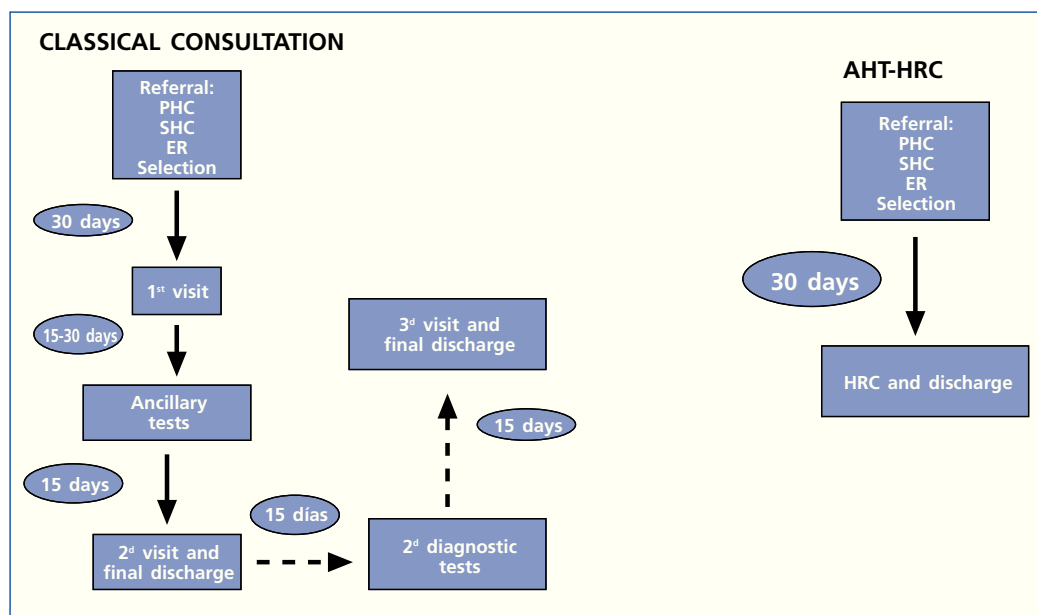


Figure 2. Comparative diagram of type of consultation.

This has represented a spare of 212-302 visits and 302-604 commutes for the users; these 61 patients were seen and discharged in the same working day, during which the complementary tests, the medical visit, and the medical report with the diagnosis and the recommended treatment were performed.

Twenty-nine patients (32.2%) remained at our clinic because of having pathology requiring specialized health care. Each one of these patients have spared at least one visit and two commutes, that is to say they have saved 29 visits and 58 commutes.

In our series, the most prevalent risk factor was dyslipemia (53.3%), which is higher than in other series,^{5,6} followed by obesity (48.9%), which is similar to others (5,6), and age > 55 years in women and > 65 years in men (46.7%). Diabetes mellitus was present in 11 patients (12.2%).

The damage of target organs was present in 28.9%, microalbuminuria in 10 cases, LVH in 13 patients, and neurological lesion (ACVA) in 3, associated cardiovascular disease in 30 cases, coronary heart disease in 8, CVA/TIA in 4, renal failure in 28, heart failure in one case, and peripheral vascular disease in another one (several patients presented more than one pathology).

The Health Care Area of Cáceres assists 200,000 inhabitants and is particularly widespread, the hospital being located 100-120 km far from the more distant towns. The EHCS has implemented two management tools aiming at improving the patients access to health care: telemedicine, which allows assisting the patients as follow-up visits in primary care centers close to the nearest telemedicine emitting station, and high-resolution clinics (HRC) that allow for the provision of first consultations at single visits sparing commutes with the consequent user's satisfaction. AHT-HRC represents a continuous improvement of health care assistance by reducing the ratio of follow-up visits/first visits, improving the direct and indirect costs, and creating «spots» for

other potential first visits and decreasing the time on the waiting list.

The experience has shown how HRC improves the scientific and technical quality, the relational quality perceived by the user, and the organizational and managerial quality optimizing the resources and lowering the costs per process.³

To our experience, given that this is a specific pathology and after years of collaboration with primary care physicians, we have been able to spare the screening visit and after assessing the referral form done at PHC, we directly schedule the patients for their tests and then we perform the HRC.

We are not aware of other HRC aimed at AHT patients since in the reference reported by the Hospital of Alto Guadalquivir⁷ this pathology or the specialty of Nephrology are not expressly addressed. We believe HRC is very helpful since it allows assessing, diagnosing and recommending a treatment in most of hypertensive patients within a single working day.

We agree with J. Gervas and L. Palomo⁸ that sometimes these consultations are «excessive» and that referral from primary care not always meets stringent referral criteria with the implicit decrease in the complexity of the pathology;⁹ however, given the lack of a consensus for referral between primary care and specialized care, the variability is large and we believe that in these cases a high-resolution consultation leads to a higher percentage of discharges from the hospital-based clinic; in such an extent region as ours, HRC clearly spares commutes and the loss of working days in the patient and/or his/her escort.

We also accept that there may be some diagnostic fierceness, as Pérez-Fernández and Gervas state,¹⁰ and that we may be valuing the usefulness of every test performed, especially estimation of the glomerular filtration rate by scintigraphy.

Finally, we agree with Zambrana⁷ that awareness of the physicians implicated, who are the ones that must believe first in the idea, is necessary to implement this kind of consulta-

tions; besides, other hospital professionals, especially radiologists, laboratory physicians, and managers, must be aware of the convenience of scheduling these consultations as preferential ones; in addition, these programs would considerably improve with active participation of primary care physicians in the elaboration of AHT-HRC referral protocols.

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