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Original article

The impact of interventional nephrologists on the growth of a peritoneal dialysis program: Long-term, single-center experience

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ABSTRACT

Peritoneal dialysis (PD) is an underutilized form of renal replacement therapy. Although a variety of factors have been deemed responsible, timely insertion of a PD catheter may also be a contributory factor. Furthermore, a good catheter implantation technique is important to allow for effective peritoneal access function and long-term technique survival. Studies regarding results obtained by nephrologists in comparison with surgeons have been limited to small single-center experiences. Thus, the objective of this study was to explore the impact of the peritoneal dialysis (PD) catheter insertion by nephrologists compared to surgeons on early catheter complications and on technique survival. We also examine whether PD catheter insertion by nephrologists has a positive impact on the growth in the number of patients using PD. We performed 313 consecutive procedures: 192 catheter insertions and 121 catheter removal from January 1, 2006 to December 31, 2013. The main reasons for catheter removal were: renal transplantation, 52 (43%) follow of transfer to HD, 48 (40%) and catheter malfunction, 16 (13%). The patients were mostly male (63.4%) with the mean age of 50.8 ± 15.1 years and 23.8% were diabetics. We only observed seven (2.5%) early complications (<4 weeks) associated to peritoneal catheter surgery (3 peritonitis episodes, 2 hemoperitoneum episodes, one complicated hernia and one omental entrapment). There were not significant differences in surgery-related complications in both periods. The penetration ratio of PD after 2006 was 117% higher compared with procedures performing before this date. In conclusions, we have demonstrated a positive impact on the growth of the PD population when catheter insertion is performed by nephrologists with a minimal incidence of complications associated.

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El impacto de los nefrólogos intervencionistas en el crecimiento de un programa de diálisis peritoneal: la experiencia de un centro único a largo plazo

R E S U M E N

Palabras clave:

Nefrología intervencionista

Diálisis peritoneal

Cirugía de catéter

La diálisis peritoneal (DP) es un tipo de tratamiento de reemplazo renal infrautilizado. Aunque ello se debe a múltiples factores, la inserción puntual de un catéter de DP también puede ser un factor coadyuvante. Más aún, una buena técnica de implantación del catéter es importante para posibilitar una función de acceso peritoneal eficaz y facilitar la continuidad de la técnica a largo plazo. Los estudios sobre los resultados obtenidos por nefrólogos en comparación con los de los cirujanos se han limitado a pequeñas experiencias de centro único. Por ello, el objetivo de este estudio fue analizar el impacto de la inserción del catéter de diálisis peritoneal (DP) por nefrólogos en comparación con el de los cirujanos cuando surgían las primeras complicaciones con el catéter y en relación con la continuidad de la técnica. También examinamos si la inserción del catéter de DP por nefrólogos tenía un impacto positivo en el aumento del número de pacientes con DP. Llevamos a cabo 313 procedimientos consecutivos: 192 inserciones de catéter y 121 extracciones de catéter entre el 1 de enero de 2006 y el 31 de diciembre de 2013. Las principales razones para la extracción del catéter fueron: trasplante renal, 52 (43%), seguido por transferencia a hemodiálisis (HD), 48 (40%) y funcionamiento defectuoso del catéter, 16 (13%). La mayoría de pacientes era de sexo masculino (63,4%) con una media de edad de $50,8 \pm 15,1$ años y 23,8 eran diabéticos. Sólo observamos 7 (2,5%) complicaciones tempranas (<4 semanas) asociadas con cirugía de catéter peritoneal (3 episodios de peritonitis, 2 episodios de hemoperitoneo, una hernia complicada y un atrapamiento omental). No hubo diferencias significativas en las complicaciones relacionadas con la cirugía en ambos períodos. La tasa de penetración de la DP desde 2006 fue el 117% superior a la de aquellos procedimientos que se habían llevado a cabo antes de esa fecha. Resumiendo, hemos demostrado que existe un impacto positivo en el aumento de la población con DP cuando los nefrólogos realizan la inserción del catéter con una mínima incidencia de complicaciones asociadas.

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Introduction

The increasing prevalence of end stage renal disease over recent years has led to an increased number of both dialysis access procedures, that is hemodialysis (HD) and peritoneal dialysis (PD), as well as an important extra workload for those interventional nephrologists, radiologists or surgeons involved.^{1,2} Providing an optimal dialysis access care is very important in patients starting renal replacement therapy because the patient's outcome depends on the access procedure survival, especially in patients starting peritoneal dialysis.^{3,4} The outcome of the access care provided by nephrologists as well as the procedures they perform are comparable to those provided by surgeons and radiologists.⁴⁻⁶ The exact proportion of procedures currently performed by nephrologists is unclear, although it is known to be increasing since the establishment of the American Society of Diagnostic and Interventional Nephrology in 2000.⁷⁻⁹ In addition there is little information comparing the severe complications of the procedure performed by surgeons versus by nephrologists. The aim of our study was to describe the impact of interventional nephrologists on the growth of a peritoneal dialysis program in a regional center and compare life-threatening complications between both procedures.

Material and methods

This is a study purely descriptive of our daily clinical practice when starting PD catheter procedure in our Nephrology unit. In our PD program, catheter surgery was undertaken by surgeons until 2006. Thereafter up to date, the nephrologists have performed catheter surgery. Our center is a third-level hospital, which attends population of Malaga province (the province has 1,600,000 h). The PD and HD incidences during both periods (<2006 vs. >2006) were 5.6% ($n=69$) vs. 94.4% ($n=1169$) respectively before 2006 and 11.5% ($n=172$) vs. 88.5% ($n=1322$) respectively after 2006 ($p=0.0001$). A total of 313 consecutive procedures were carried out by the same team interventional nephrologists in the Carlos Haya Regional University Hospital (Málaga, Spain). Table 1 depicts demographic and clinical characteristic of our patients who started PD before and after 2006. We used a dissection technique similar to that previously used by surgeons: tissue layers are dissected and separated under direct vision through a minimal parietal peritoneum dissection without the use of trocar devices. The hospital provides an operating room in order to carry out the technique. Patients are admitted and discharged from hospital on the same day provided there are not relevant clinical complications such as fever,

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