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## ORIGINAL ARTICLE

### Allogeneic parathyroid: 2-year follow-up<sup>☆</sup>



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#### KEYWORDS

Hypocalcaemia;  
Parathyroid;  
Hypoparathyroidism;  
Allotrasplant

#### Abstract

**Background:** Hypoparathyroidism is one of the most frequent complications of neck surgery. The treatment is currently medical; however this involves several complications secondary to high doses of calcium and vitamin D, thus making parathyroid allotransplantation a good management option.

**Material and methods:** Patients with hypoparathyroidism were selected in the April-December period of 2011 in the general surgical clinic. They were between 16 and 65 years, and ingested high doses of calcium. The donors were patients with primary and secondary hyperparathyroidism, and the transplants were performed in relation to blood group and human leucocyte antigen.

**Results:** Five parathyroid allografts were performed. All the patients had iatrogenic hypoparathyroidism, all women with a mean age of 49.8 years. The graft was implanted under local anaesthesia in the non-dominant forearm. Four of the patients are so far considered functional due to the increase in parathormone, and demonstrating its function by scintigraphy with sestamibi. One of the patients showed no increase in parathormone or imaging studies that demonstrate its functionality. After a two year follow-up the graft remains functional but with oral calcium intake at a lower dose than before transplantation. None of the patients had immunosuppression side effects.

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**Conclusions:** In this study, allogeneic unrelated living parathyroid transplant with an immunosuppressive regimen of six months has proven to be a safe alternative treatment to improve quality of life by decreasing the excessive calcium intake and improving physical activity with adequate graft survival at 24 months follow-up.

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## PALABRAS CLAVE

Hipocalcemia;  
Paratiroides;  
Hipoparatiroidismo;  
Alotrasplante

## Alotrasplante de paratiroides: seguimiento a 2 años

### Resumen

**Antecedentes:** El hipoparatiroidismo es una complicación frecuente de la cirugía de cuello. Actualmente el tratamiento es médico, y conlleva complicaciones secundarias a altas dosis de calcio y vitamina D, por lo que el alotrasplante es una opción de manejo.

**Material y métodos:** Seleccionamos pacientes con hipoparatiroidismo en el periodo abril-diciembre de 2011 de la consulta de Cirugía General, de entre 16 y 65 años, que ingirieran dosis altas de calcio. Los donantes fueron pacientes con hiperparatiroidismo primario y secundario; los trasplantes se realizaron en relación con grupo sanguíneo y antígeno leucocitario humano.

**Resultados:** Se realizaron 5 alotrasplantes de paratiroides, en pacientes con antecedente de hipoparatiroidismo iatrogénico, mujeres con una edad promedio de 49.8 años; al tener el injerto bajo anestesia local se implanta en el antebrazo no dominante. De los trasplantes realizados 4 se consideran funcionales por elevación de paratohormona y se ha demostrado su función mediante gammagrama sestamibi. Una de las pacientes no mostró aumento de paratohormona ni los estudios de imagen demostraron la funcionalidad del injerto. A 2 años de seguimiento se mantienen con el injerto funcional, pero aún con ingesta de calcio oral aunque a más bajas dosis que antes del trasplante. Ninguna de las pacientes tuvo efectos secundarios a la inmunosupresión.

**Conclusiones:** El alotrasplante de paratiroides de vivo no relacionado con esquema de inmunosupresión ha demostrado ser un tratamiento alternativo seguro, para mejorar la calidad de vida al disminuir la ingesta excesiva de calcio y mejorar la actividad física de los pacientes, con sobrevida del injerto a 24 meses de seguimiento.

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## Background

Hypoparathyroidism is one of the most common complications in neck surgery (thyroid glands, parathyroid glands, etc.); its incidence is associated with the type of disease or surgical technique used, as well as with the surgeon's experience. It is estimated that 10% of the patients who undergo surgery due to thyroid carcinoma will develop hypoparathyroidism.<sup>1</sup>

Nowadays, the only treatment for hypoparathyroidism is calcium and vitamin D supplements, which for a lack of negative feedback is frequently associated with overdoses or insufficient doses, leading to either hypo- or hypercalcaemia complications. With the purpose of avoiding complications associated with medical treatment, several surgical techniques have been attempted, such as the autotransplantation of fragments of parathyroid tissue. However, many times it is not possible to have parathyroid tissue for this procedure.

In 1971, Wells et al. performed a living-related donor allotransplantation, removing two parathyroid glands and implanting them in his/her son, who had previously received a renal transplantation. After a 30-month follow-up, endocrine activity was found in this implant.<sup>2</sup> Since then, there have been several reports about parathyroid allotransplantations with diverse results.<sup>3-5</sup> However, this procedure requires immunosuppression, which involves some well-known side effects.

One of the main issues related to allotransplantations is implant rejection, and implant survival and functionality will only be possible when the tissue is devoid of antigenic cells that strongly express human leucocyte antigen (HLA) class II. Parathyroid cells weakly express HLA class I antigens, which are not responsible for the rejection reaction, so this type of tissue generates a low incidence rate of rejection.<sup>6</sup>

We present the clinical results of five patients who received parathyroid allotransplantation due to postsurgical hypoparathyroidism after a one-year follow-up.

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