

## GENETIC INFLUENCES IN URINARY INCONTINENCE OCCURENCE: A LITERATURE REVIEW

### Hypothesis / aims of study

To perform literature survey of published papers in recent years which investigate possible genetic factors as risk for urinary incontinence.

### Study design, materials and methods

It was performed a literature review of published articles in full between 1996 and 2013 in the database of the National Center for Biotechnology Information (NCBI - PubMed) and SCIELO site. The employed terms were: Genetics, polymorphism and urinary incontinence. Subsequently, the Diabetes term was added. Articles were analyzed according to actuality and content criteria.

### Results

Using the words genetics, urinary incontinence and polymorphism randomly, a total of 149 papers were found. Of these, 15% were related to genetic influence on the occurrence of urinary incontinence, ranging from heredity to more specific investigations such as gene expression and polymorphism.

Considering these 15% as the total of articles studied, following the actuality criteria, 39% of the articles were considered recent, being published after 2009.

Regarding the content, 56.5% of these were related to genetic studies in general, discussing possible factors that influence on the urinary incontinence involving mainly heredity, 39.2% related some type of polymorphism with the occurrence of urinary incontinence and 8.7% related gene expression with urinary incontinence. No paper was found about the relationship between genetic factors, urinary incontinence and Diabetes, as well as no papers that associate polymorphism of metalloproteinases 2 and 9 with urinary incontinence were found.

### Interpretation of results

Despite the findings in the literature regarding the great importance of the relationship between genetic factors and the occurrence of urinary incontinence, we note with this survey, that the reduced number of papers that investigate the genetic influence on the occurrence of urinary incontinence, both broadly, as in the case of heredity, as specifically, such as gene expression and the related polymorphisms. In addition it, there are no papers that relate genetic factors, urinary incontinence and diabetes, though the findings in the literature regarding the important influence that diabetes exerts on the occurrence of urinary incontinence due to muscle-skeletal changes. Thus, it is unclear the mechanism of this relationship, as well as its cause.

Incontinent women have several factors that may be related to the urinary incontinence such as age, hormonal status, pregnancy and obesity (1). With this, the possibility that some type of genetic alteration may interfere in the occurrence of urinary incontinence directly or indirectly can't be ruled out.

Some of these papers showed that the polymorphism of collagen type 1 was a risk factor for urinary incontinence (2) while others observed no changes in collagen synthesis, but the gene expression of metalloproteinases (3). Genetic papers like these could serve as a marker for the occurrence of urinary incontinence.

### Concluding message

From the data found in this paper, it is concluded that there is relationship between genetic factors and urinary incontinence, even in what regards to the metabolism of type 1 collagen and metalloproteinases 2 and 9. However, as the factors that influence the occurrence of urinary incontinence are still not fully understood and due to scarcity in the literature, it becomes necessary to investigate widely possible influence factors with regard to urinary continence and integrity of the pelvic floor muscles so that, in clinic practice, it can be detected and from this, preventative approachment may be possible, and therapeutic measures that minimize, established.

Therefore, we emphasize the importance of genetic research focusing on the genesis of the urinary incontinence, since much of the recent research is still generic and with no palpable findings, despite the recent increase in publications on the subject.

### References

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### Disclosures

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