

11. ABSTRACT

Introduction: Despite intensive research in the area of LBP the natural course of LBP is largely unknown. Some authors theorize that acute LBP is merely a stage in a chronic condition, characterized by variation and change rather than a self-limiting course. The present project investigates this theory. If LBP does prove to be recurrent rather than self-limiting, it is of major importance to identify the problem early. LBP in children and adolescents has until recently been a relatively neglected area, but there is now strong evidence that LBP originates earlier in life than hitherto thought. Furthermore, people with LBP in adolescence have a high risk of recurrences throughout life. Most research in the causality field of LBP has so far focused on risk factors rather than risk populations, whereas the second part of this project is aimed at identification of a "frail" subgroup of youngsters who are prone to develop LBP. Identifying these individuals is essential for targeting primary prevention programs specifically at those with an increased risk.

Materials and methods: The present project consists of two distinct, but interrelated parts:

1. The natural history of LBP:

- A systematic and critical review of the literature relating to the natural history of LBP.
- Analysis of data from a five-year, prospective, population based survey of 1,370 30-50 year old individuals (The Ebeltoft Health Promotion Study) to investigate the course of LBP.

2. Factors associated with LBP in adolescence:

- A systematic and critical review of the literature relating to comorbidity with LBP.
- Analysis of data from a cross-sectional population based survey of 9,567 12-22 year old twins (The Danish Twin Registry and The Danish Medical Birth Registry). LBP-data were analyzed for associations with other diseases as well as birth characteristics and, finally, the heredity of LBP among adolescents was estimated.

Results:*1. The natural history of LBP:*

Results confirm that the course of LBP is characterized by exacerbations and remissions.

2. Factors associated with LBP in adolescence:

- All investigated disorders, with the exception of diabetes, show evidence of a positive association with LBP in adults. No literature, related to children or youngsters, was identified on the subject.
- There is an increased risk of LBP in adolescents suffering from asthma and headache. This risk increases significantly in subjects suffering from several disorders, i.e. disorders, including LBP, cluster in some individuals.
- There is a weak, but statistically significant, positive association between high birth weight and LBP, but no relationship between LBP and birth length, ponderal index, and Apgar score.
- The age-adjusted heritability estimate for the development of LBP in the young is 40% for females and 44% for males. The influence of genetic components of the liability to develop LBP in relation to non-shared environment decreases from age 12 to age 19, after which the relationship between genetic and environmental components is fairly stable.

Conclusions: LBP is usually characterized by exacerbations and remissions, but in about 10% of the population it becomes chronic/frequently recurring. LBP is associated with the presence of other disorders in both adults and adolescents, thus, these associations cannot be explained merely by external factors in adult life, but probably have, at least partly, a common origin. This was not detected by birth factors, but may have a genetic component. It is possible that it is the individuals with a strong genetic disposition for LBP, who develop chronic/recurrent LBP in adulthood. If such an underlying genetic predisposition exists, the recurring pattern of LBP is a logical consequence. This predisposition might also represent a general frailty making individuals more prone to other disorders as well, which would explain the shown associations between LBP and other disorders. If such a frail subgroup could be identified in childhood or adolescence, selective preventive efforts would be possible, at least for LBP but may be for general health as well.