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6 Budowa bariery jelitowej Structure of the intestinal barrier

Dagmara Węgrzyn, Karolina Adamek, Beata Łoniewska

ABSTRACT

The intestinal barrier consist of several layers. It is made of gut microbiota, a protective layer of mucus, intestinal epithelial cells, and the blood, lymphatic, immune and nervous systems. Mucus, which prevents the adhesion and penetration of pathogens to the intestinal wall, is also a habitat for intestinal microbiota – one of the key and most dynamic elements of the intestinal barrier. Microbiota mainly consist of anaerobic bacteria, and also aerobic bacteria, yeast and viruses. The intestinal ecosystem is constantly changing during human life, but tends to keep a balance, which is a guarantee of health. The single layer of the intestinal epithelium is a part of the physical barrier, which is mainly formed by enterocytes, which in addition to the absorption of nutrients affect the development of immunity by mediating the release of cytokines and the expression of receptors involved in the immune response. Tight junctions are located at the apical ends of the lateral membranes of intestinal epithelial cells. They are the most important elements for maintaining intestinal permeability. Anchoring junctions and communicating junctions are also connections between epithelial cells. Under the layer of epithelial cells is the lamina propria, comprising intestinal lymphatic tissue, intestinal tract, and nervous system tissue. Continuous changes in the intestinal barrier influence the health and disease balance.

Keywords: intestinal barrier; microbiota; tight junction; gut-associated lymphoid tissue

assistance in making a decision about a future profession or having children. Ophthalmologists should provide partially sighted people with a complete list of available optical systems, as well as treat cataract and cysts macular changes often associated with RP.

Keywords: retinitis pigmentosa; pharmacological treatment; non-pharmacological treatment.

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15 Gestational age at birth and mode of delivery – analysis of 1280 cases of diabetic pregnancies and review of the literature

Wiek urodzeniowy noworodka i sposób zakończenia ciąży – analiza 1280 ciąż powikłanych cukrzycą i przegląd piśmiennictwa

Aleksandra Rajewska, Zbigniew Celewicz, Andrzej Torbé

ABSTRACT

Introduction: The aim of the study to analyze the gestational age at delivery, delivery mode, and indications for caesarean section in 1280 women suffering from diabetes mellitus.

Materials and methods: The gestational diabetes (GD) group was divided into classes: G1 (n = 620) of women who needed diet only, and G2 (n = 524), who needed insulin administration. The pregestational diabetes (PGD) group was categorized in subgroups: of classes B, C and D – BCD (n = 103) and of classes R, F and RF (VC – vascular complications) (n = 33).

Results: In the GD-group 4.3% of deliveries occurred in <34th week of gestation, while in the PGD-group the percentage of such births was 10.29 (p = 0.0045). The lowest percentage of deliveries <34th week was observed in G2, and the highest in the VC-subgroup. The occurrence of delivery <37th week in GD was lower than in the PGD-group (p = 0.002). It was rarest in G2 and most frequent in the VC-subgroup. The percentage of caesarean section was lower in GD than in the PGD-group (47.94 vs. 74.26; p < 0.001). In the VC-subgroup it was near 100, while the lowest occurrence was noticed in the G1-subgroup. In both groups, caesarean delivery was performed more often because of foetal indications. Foetal indications prevailed in subgroups G1, G2 and BCD, while in the VC-subgroup most indications were of maternal condition.

Conclusions: Diabetes accompanying pregnancy increases the risk of preterm birth, especially in cases of pre-pregnancy diabetes complicated by vascular disease. Caesarean delivery is more often necessary in women with pre-pregnancy diabetes than in those with gestational diabetes mellitus. The most typical caesarean section among the diabetic women is that performed because of maternal indications in pre-pregnancy diabetes complicated by vascular disease.

Keywords: caesarean section; diabetes mellitus; pregnancy; pre-term birth.

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Kamila Krasodomska, Wojciech Lubiński

ABSTRACT

Introduction: Progressive nature and lack of effective treatment of the retinitis pigmentosa (RP) leads to search for the new therapeutic methods to stop progression of the disease.

The aim of this study is to review the current treatment modalities that may influence progression of RP.

Materials and methods: Based on the results reported in the available literature, non-pharmacological and pharmacological investigation in RP has been reviewed.

Results: The results of numerous studies indicate that so far there is no cure for RP. However, there are methods that can slow down progression of the disease.

Conclusions: Therapeutic treatment of patients with RP should be focused on providing psychological care, education planning,

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35 Nanomaterials in dental specialities – an evolving perspective? Review article. Part 1
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Bartosz Dalewski, Ewa Sobolewska, Bogumiła Frączak

ABSTRACT

Introduction: Nanotechnology has been established in dental specialities as a novel methodology for developing materials with enhanced physical properties and antimicrobial potential. In this review we discuss the current progress, prospects, and possible future applications of functional nanoparticles contained in nanomaterials as useful strategies for refining their ability to resist occlusal forces, as well as oral biofilm management. We also provide an overview of the suggested antimicrobial mechanisms for these nanoparticles.

The purpose of this study was to use an evidence-based approach to assess the possible applications of nanomaterials in various fields in contemporary and potential future dentistry.

Methods: A comprehensive database search was implemented by using Medline (PubMed) and ISI Web of Science.

Results: Nanomaterials have significant potential for decreasing bacterial biofilm accumulation, inhibiting the demineralization process, remineralising tooth tissues, and combating caries-related bacteria. However, their ability to withstand intraoral forces needs to be further improved.

Conclusions: The results reviewed in this work present a bright outlook and open doors for future clinical studies that will allow the admission of the therapeutic value of nanotechnology-based dental materials.

Keywords: acrylic resins; graphene; nanocomposites; nanoparticles; silver.

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