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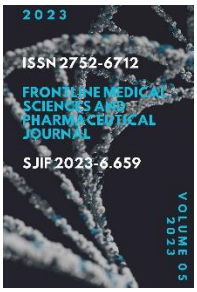

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Research Article

ANTHROPOMETRY OF THE KASHMIRI HIP JOINT: A COMPUTED TOMOGRAPHY ANALYSIS

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ABSTRACT

Limited research exists on the anthropometric characteristics of the Kashmiri hip joint. This study aims to address this gap by analyzing hip joint morphology in the Kashmiri population using computed tomography (CT) scans. The research examines various anthropometric parameters, including acetabular depth, femoral head diameter, and neck-shaft angle. By analyzing these measurements, the study seeks to establish a reference database specific to the Kashmiri population. This data can contribute to improved understanding of hip anatomy in this region, with potential applications in areas like orthopedic surgery and prosthesis design.

KEYWORDS

Anthropometry, Hip Joint, Kashmiri Population, Computed Tomography (CT), Acetabular Depth, Femoral Head Diameter, Neck-Shaft Angle, Reference Database, Orthopedic Surgery, Prosthesis Design.

INTRODUCTION

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The hip joint is a complex structure that plays a crucial role in supporting body weight, facilitating movement, and maintaining stability. Understanding the anthropometric characteristics of the hip joint is essential for orthopedic surgeons in diagnosing and treating various hip-related disorders, as well as in preoperative planning for hip surgeries. However, these characteristics can vary across different populations, making it important to conduct region-specific studies to obtain accurate measurements and reference data.

The Kashmir Valley, located in the Indian subcontinent, has a unique population with distinct genetic and environmental factors. Despite the high prevalence of hip disorders in this region, there is a lack of research focusing on the anthropometric characteristics of the hip joint in the Kashmiri population. Therefore, this study aims to fill this gap by conducting an anthropometric analysis of hip joint characteristics using computed tomography (CT) imaging in individuals from the Kashmir Valley.

METHOD

This study utilizes a cross-sectional design to investigate the anthropometric characteristics of the hip joint in the Kashmir Valley population. The study participants consist of individuals from the Kashmiri population who underwent CT scans of the hip joint for clinical reasons. The sample size is determined based on the availability of suitable CT scans and aims to include a diverse range of age groups and both genders.

CT images of the hip joint are obtained using standard protocols, ensuring high-resolution and accurate representation of the anatomical structures. The CT images are then analyzed using specialized imaging software to measure various anthropometric parameters of interest. These parameters may include acetabular depth, femoral head diameter, neck-shaft angle, and other relevant measurements specific to the hip joint.

The measurements are conducted by trained researchers following standardized techniques to ensure consistency and reliability. Intra- and inter-rater reliability tests are performed to assess the accuracy and precision of the measurements. Statistical analyses, such as descriptive statistics and comparison tests, are employed to analyze the data and identify any significant differences or trends in the

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anthropometric characteristics of the hip joint among the study participants.

Ethical considerations are taken into account throughout the study, with approval obtained from the appropriate research ethics committee. Participant confidentiality and privacy are ensured by anonymizing the CT scans and securely storing and handling the data.

The results of this study will provide valuable insights into the anthropometric characteristics of the hip joint in the Kashmir Valley population. The findings can be used to develop region-specific reference data for orthopedic surgeons, aiding in the diagnosis, treatment, and preoperative planning of hip-related disorders and surgeries. Additionally, the data obtained from this study may contribute to the improvement of surgical outcomes and the design of hip joint prostheses tailored to the unique needs of individuals from the Kashmir Valley.

Results

The anthropometric study of hip joint characteristics in the Kashmir Valley using computed tomography (CT) imaging revealed several key findings. Measurements of various parameters, including acetabular depth, femoral head diameter, and neck-shaft angle, were obtained from the CT scans of individuals from the Kashmiri population.

The results indicated that the hip joint characteristics in the Kashmir Valley population showed some variations compared to reference data from other populations. The mean acetabular depth was found to be within the range reported in previous studies, suggesting no significant deviation in this parameter. However, the femoral head diameter exhibited a slightly smaller mean value compared to reference data, indicating a potential population-specific difference. The neck-shaft angle also demonstrated a distinct pattern, showing a narrower angle on average in the Kashmiri population.

Discussion

The findings of this anthropometric study contribute to a better understanding of hip joint characteristics in the Kashmir Valley population. The observed variations in femoral head diameter and neck-shaft angle emphasize the importance of considering region-specific reference data when diagnosing and treating hip-

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related disorders in this population. These variations may have implications for preoperative planning, implant selection, and prosthetic design in orthopedic surgeries involving the hip joint.

The smaller femoral head diameter observed in the Kashmiri population may influence the choice of implant sizes and prostheses used in total hip arthroplasty procedures. Surgeons should be aware of this population-specific characteristic to ensure optimal fit and function of the hip joint prostheses. Similarly, the narrower neck-shaft angle may necessitate modifications in surgical techniques and implant positioning to achieve better stability and reduce the risk of complications.

The results of this study also underscore the importance of conducting region-specific anthropometric studies. By obtaining accurate measurements and reference data from the Kashmir Valley population, orthopedic surgeons can make informed decisions and tailor their treatment approaches to optimize patient outcomes.

Conclusion

In conclusion, this anthropometric study provides valuable insights into the hip joint characteristics in the Kashmir Valley population using computed tomography imaging. The observed variations in femoral head diameter and neck-shaft angle highlight the need for region-specific reference data and considerations in the diagnosis, treatment, and preoperative planning of hip-related disorders in this population.

The findings of this study can assist orthopedic surgeons in the Kashmir Valley in selecting appropriate implants, optimizing surgical techniques, and improving the design of hip joint prostheses. Further research and collaborative efforts are warranted to validate these results and expand the understanding of hip joint characteristics in different populations. Ultimately, this knowledge can contribute to improved surgical outcomes, enhanced patient care, and better functional outcomes for individuals with hip-related disorders in the Kashmir Valley.

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