Letter to Editor

Testicular Torsion: Time to Care and Ethnicity

Dear Editor

Testicular torsion is common in children and represents a medical emergency. It is associated with sudden, intense testicular pain resulting from rotation of the testicle, which leads to obstruction of blood flow and tissue ischemia. This condition requires emergency surgical management to maintain testicular viability.[1]

The objective of this study was to evaluate testicular torsion in patients under 18 years of age, with a focus on demographic, clinical, and hospital care factors associated with testicular loss.

The study of factors associated with testicular torsion outcomes was conducted in the emergency department of Hospital da PUC-Campinas, São Paulo State, Brazil. The study included data from patients under 18 years of age with a confirmed diagnosis of testicular torsion, an initial complaint of severe acute unilateral scrotal pain, nausea and/or vomiting, an abnormal cremasteric reflex, and a high testicular position. Patients were attended between March 2007 and May 2017. The PUC-Campinas Hospital is part of Brazil's Unified Health System and predominantly serves patients of low socioeconomic and cultural status. We collected required data, including demographic data (such as age, ethnicity [white/non-white]), time from symptom onset to medical care, mean time to effective care/surgical procedure at the hospital, and surgical outcome (testicle loss: yes/no). Cases without surgical intervention or with incomplete clinical data were excluded from the study.

The project was approved by the Human Research Ethics Committee (CAAE: 65521517100005481, no. 1992140). Written informed consent was obtained from all parents or guardians of patients.

The study included 71 patients with a mean age of 12.8±4.2 years. Factors associated with orchiectomy (gonad loss) and orchidopexy (gonad preservation) were evaluated. The orchiectomy group comprised 19 (26.7%) cases, and the orchidopexy group comprised 52 (73.2%) cases.

Data were analyzed for means, standard deviations, frequencies, and percentages, using IBM SPSS Statistics software (version 26.0, IBM Corp., Armonk, NY, USA). The Mann-Whitney and Chi square tests were used to compare the variables. Factors related to orchiectomy were evaluated using logistic regression. For multiple analyses, stepwise variable selection was used, and the level and significance adopted was 5%. P values less than 0.05 were considered statistically significant.

The duration between symptom onset and seeking hospital care was significantly longer in the orchiectomy group than in the orchidopexy group. A longer time to effective hospital care was also observed in the orchiectomy group than the orchidopexy group (table 1). Logistic regression analysis revealed that each additional hour from symptom onset to medical care increased the chance of orchiectomy by 4%. Testicular salvage rates are the highest if testicular distortion occurred within 6 h of symptom onset, while they decrease significantly after 4-8 h, and are nearly impossible after 24 h.

Multiple logistic analysis identified the main factors related to orchiectomy as ethnicity (non-white) and longer duration of symptoms (table 1). The combined data analysis showed that longer duration of symptoms until surgery and ethnicity were the factors associated with orchiectomy. No differences were found between groups for other variables.

It was concluded that the rate of orchiectomy was high in this series. Longer symptom duration until surgical care/procedure, as well as non-white ethnicity, were factors associated with orchiectomy. These results corroborated literature findings that early diagnosis and immediate surgical treatment are fundamental for the prognosis of testicular torsion.[1-3] However, to our knowledge, the association between ethnicity and prognosis—potentially mediated by socioeconomic and anatomical factors—has not been previously reported. The association between delayed care and a greater need for orchiectomy reinforces the importance of educational initiatives to raise awareness for early diagnosis and to develop strategies to inform both the general population and medical professionals working in urgent and emergency services.[4, 5]

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Table 1: Demographic and clinical-surgical data of patients with acute scrotum syndrome and logistic regression data of factors associated with orchiectomy (n=71)

Variable	Orchiectomy (n=19) mean±SD	Orchidopexy (n=52) mean±SD	P value
Age (year)	13.5±3.9	12.5±4.3	0.413
Distance from hospital (Km)	8.0±6.6	9.7±7.8	0.205
Symptom time (min)	73.0±166.6	8.8±12.1	0.011*
Time to hospital care (min)	300±355.2	132.8±193.0	0.018*
	Odds Ratio (OR)	**95% CI**	**P value**
Effect			
Ethnicity (Non-white vs. white)	2.74	0.93-8.09	0.067
Age	1.07	0.93-1.23	0.372
Time of duration of symptoms	1.04	1.01-1.08	0.011*
Time in the hospital	1.002	1.000-1.004	0.029*
Multiple Analysis			
Ethnicity (Non-white vs. white)	3.66	1.07-12.45	0.038*
Time of duration of symptoms	1.04	1.01-1.07	0.009*

*P<0.05 was considered statistically significant. The Mann-Whitney test was used.

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Authors' Contribution

RMTG. and JLBA: Participated in all stages of this research (study conception and/or design, data processing, collection, performing experiment, analysis and interpretation of results, draft manuscript preparation, visualization, critical revision or editing of the article). GMAST, RB, and VALM: Participated in the data analysis, analysis and interpretation of results, draft manuscript preparation, visualization, critical revision or editing of the article, and supervision. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Declaration of AI

The authors declare that no AI tools were used in the preparation of this manuscript.

Conflict of Interest: None declared.

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