**[Unravelling the Mystery](http://www.wowhead.com/quest%3D8314/unraveling-the-mystery) behind Sudden Death in the Young. A Wake up Call for Nationwide Autopsy-Based Approach**

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We read with great interest the paper by Wisten et al.1 regarding the epidemiology and the causes of sudden cardiac death (SCD) in young individuals in Sweden.

Interestingly sudden arrhythmic death syndrome (SADS) was reported as the predominant post-mortem finding in SCD and only a minority of deaths occurred during physical activity. SADS is a diagnosis of exclusion in the presence of a macroscopically and histologically normal heart with normal toxicology and may be attributable to inherited arrhythmia syndromes. s2. Our group recently reported similar results in a large cohort of athletes who died suddenly in the UK;SADS was found in 42% of the cases3. Accordingly, in a large nationwide autopsy study in Australia and New Zealand, SCD was unexplained after thorough post-mortem examination and toxicology study in 40% of cases in persons 1 to 35 years of age4. The study by Wisten et al. confirms the need for developing of large nationwide SCD autopsy registries, which can provide insights in to the epidemiology and the causes of sudden death in the young. Although the study is admirable in its size and detail, there are some important limitations which have to be acknowledged. The authors used two major database sources: the Swedish National board of Forensic Medicine (SFR) and the Swedish Cause of Death Registry (SDR). In both groups and especially in the SDR, the proportion of autopsies was remarkably low, therefore, from an epidemiological perspective, the exact cause of SCD was not ascertained in a large proportion of the cohort. Furthermore almost 400 cases were excluded from the analysis because a death certificate was not available, resulting in a potential selection bias. In addition, including SCDs without autopsy but pre-mortem cardiac diagnosis may be methodologically questionable because the post-mortem provides histological characterization that is not necessarily in keeping with a diagnosis in-vivo. The significant efforts in selecting “true” cases of SCD, excluding for example chronic drug abusers are acknowledged ; however, since an autopsy was often not performed, many relevant cases were not included in the final analysis resulting in a possible underestimation of the real incidence of SCD.

This interesting paper provides some important insights in the epidemiology and the causes of SCD. The limitations are a genuine representation of a “real-world” issue resulting from the lack of a standardized approach to sudden death, including a thorough post-mortem examination, preferably performed by an expert cardiac pathologist and toxicology screening. Autopsy may not clarify all the issues surrounding sudden death, but it is a pivotal step in establishing the cause of death with significant potential impact on the clinical and genetic evaluation of surviving family members5.

A better understanding of the magnitude and the aetiologies underlying sudden death in the young may be achieved through nationwide efforts to promote the development of prospective registries and implementing an autopsy-based approach where the post-mortem examination is performed in a thorough and standardized manner.

**REFERENCES:**

1. Wisten A, Krantz P, Stattin E-L. Sudden cardiac death among the young in Sweden from 2000 to 2010: an autopsy-based study. Europace [Internet]. 2017 Aug 1;19(8):1327–34. Available from: http://www.ncbi.nlm.nih.gov/pubmed/28873959

2. Bastiaenen R, Behr ER. Sudden death and ion channel disease: pathophysiology and implications for management. Heart [Internet]. 2011;97(17):1365–72. Available from: http://heart.bmj.com/cgi/doi/10.1136/hrt.2011.223883\npapers3://publication/doi/10.1136/hrt.2011.223883

3. Finocchiaro G, Papadakis M, Robertus J-L, Dhutia H, Steriotis AK, Tome M, et al. Etiology of Sudden Death in Sports: Insights From a United Kingdom Regional Registry. J Am Coll Cardiol. 2016 May;67(18):2108–15.

4. Bagnall RD, Weintraub RG, Ingles J, Duflou J, Yeates L, Lam L, et al. A Prospective Study of Sudden Cardiac Death among Children and Young Adults. N Engl J Med [Internet]. 2016 Jun 23;374(25):2441–52. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27332903

5. de Noronha S V, Behr ER, Papadakis M, Ohta-Ogo K, Banya W, Wells J, et al. The importance of specialist cardiac histopathological examination in the investigation of young sudden cardiac deaths. Europace [Internet]. 2014 Jun;16(6):899–907. Available from: http://www.ncbi.nlm.nih.gov/pubmed/24148315