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6

The epidemiology of neck pain

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Neck pain is becoming increasingly common throughout the world. It has a considerable impact on individuals and their families, communities, health-care systems, and businesses. There is substantial heterogeneity between neck pain epidemiological studies, which makes it difficult to compare or pool data from different studies. The estimated 1 year incidence of neck pain from available studies ranges between 10.4% and 21.3% with a higher incidence noted in office and computer workers. While some studies report that between 33% and 65% of people have recovered from an episode of neck pain at 1 year, most cases run an episodic course over a person's lifetime and, thus, relapses are common. The overall prevalence of neck pain in the general population ranges between 0.4% and 86.8% (mean: 23.1%); point prevalence ranges from 0.4% to 41.5% (mean: 14.4%); and 1 year prevalence ranges from 4.8% to 79.5% (mean: 25.8%). Prevalence is generally higher in women, higher in high-income countries compared with low- and middle-income countries and higher in urban areas compared with rural areas. Many environmental and personal factors influence the onset and course of neck pain. Most studies indicate a higher incidence of neck pain among women and an increased risk of developing neck pain until the 35–49-year age group, after which the risk begins to decline. The Global Burden of Disease 2005 Study is currently making estimates of the global burden of neck pain in relation to impairment and activity limitation, and results will be available in 2011.

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Neck pain is a common condition, which causes substantial disability and economic cost [1]. While much of the epidemiological literature on neck pain varies significantly with respect to methodology, which limits the ability to compare and pool data across studies, data consistently show that neck pain is widespread throughout many regions of the world, and appears to be increasing in both the general population and specific occupational groups [1].

In assessing health priorities, allocating resources and evaluating the potential costs and benefits of public health interventions, governments consider the burden of a disease and its contribution to the overall health of the population relative to other diseases [2]. Burden of disease rankings are based on how much death and disability each disease causes. Global Burden of Disease (GBD) studies provide these rankings for the world and its major regions.

The GBD 2005 study (GBD 2005) is currently being undertaken to estimate the 2005 burden for more than 175 diseases and injuries [3]. The methods used will also be retrospectively applied to 1990 data to revise the original GBD estimates [3,4]. This is the first time the global burden of neck pain has been assessed using burden of disease methods. Epidemiological parameters, such as prevalence, incidence and remission, are important in the estimation of disease burden. In this article, we describe the process we have adopted to identify data for estimating the global burden of neck pain for GBD 2005. We briefly present a summary of our results together with an overview of the neck pain epidemiological literature.

Case definition

There is extensive variation in the way neck pain is defined in the literature [5]. For the purposes of GBD 2005, the case definition for neck pain needed to be aligned with the epidemiological literature on neck pain to ensure we had sufficient data to support our estimates. The Bone and Joint Decade 2000–2010 Task Force on Neck Pain and its Associated Disorders (BJD–TF–NP) recently conducted a series of reviews of the epidemiological literature, and found more than 300 case definitions for neck pain [5]. In particular, they found variation regarding the specific anatomical region under study and the recall period used. Some studies made estimates for pain in the 'neck', while others made estimates for pain in the 'neck or shoulder' region, 'neck or upper thoracic' region or some other variation. Some provided a diagram to specifically indicate the region that was being studied, while others did not, and some prevalence studies made estimates of 'current' neck pain (point prevalence), some made estimates of period prevalence (e.g., one-year, lifetime and so on), and others provided estimates of both point and period prevalence.

The Task Force proposed a framework for defining neck pain in epidemiological studies. This consists of five axes which they recommend are clearly described when reporting on the studies: (1) the source of subjects and data; (2) the setting or sampling frame; (3) the severity of neck pain and its consequences; (4) the duration of neck pain; and (5) its pattern over time [5]. They also recommended studies use a standardised anatomical case definition for neck pain [5].

Using the five axes described above, we sought epidemiological data from surveys that had mainly focussed on the general population; we included any mildly, moderately or severely activity-limiting neck pain; and the minimum duration of an episode was set at 1 day to exclude trivial pain. For the purpose of GBD 2005, we used the following case definition: 'Activity-limiting neck pain (±pain referred into the upper limb(s)) that lasts for at least 1 day.' We used the anatomical definition as recommended by the (BJD–TF–NP) and we included cases that had pain in other areas, such as the head and trunk, provided pain was present in the neck [5]. We assumed 'neck or shoulder' pain is a proxy for 'neck' pain.

For case definitions that differed from this, we used a Bayesian function of a program called DisMod III to convert these to our GBD case definition. This will be reported on in more detail in a later publication.

Functional health states

We developed a set of discrete health states to describe the severity levels and disabling consequences of neck pain. These were chosen and defined according to the natural history of neck pain, identification of paths within that natural history that result in a significant loss of functioning and the